MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

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Sincerely,
Chas. O'H. Laughlinghouse.

TRANSACTIONS

OF THE

MEDICAL SOCIETY

OF THE

STATE OF NORTH CAROLINA

SIXTY-FOURTH ANNUAL MEETING

HELD AT

ASHEVILLE, NORTH CAROLINA

APRIL 17, 18, 19, 1917

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"It is understood that the Society is not to be considered as endorsing all the views and opinions of authors of papers published in the Transactions of the Society."—*Extract from By-Laws, chapter 10, section 8.*

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EARLY HISTORY OF THE NORTH CAROLINA MEDICAL SOCIETY FROM ORGANIZATION TO 1804.

Date	Place	President	Vice President	Corresponding Secretary	Secretary	Recording Secretary	Treasurer	Censors
Dec. 24, 1799, or April 16, 1800	Raleigh	Richard Fenner	Nathaniel Loomis, John Claiborne	Calvin Jones		Wm. B. Hill	Cargill Massenburg	Sterling Wheaton, James Webb, Jas. John Pasteur, Jason Hand
Dec. 1, 1800	Raleigh	Richard Fenner			Sterling Wheaton			
Dec. 1, 1801	Raleigh	John C. Osborne	Thomas Mitchel, Richard Fenner	Calvin Jones	Sterling Wheaton		Cargill Massenberg	James Webb, John Sibley
1802	Raleigh	John C. Osborne		Calvin Jones				
1803	Raleigh	John C. Osborne		Calvin Jones				
1804	Raleigh	John C. Osborne		Calvin Jones				

ROSTER OF OFFICERS OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA FROM 1849 TO 1917.

*Missing Data Not to be Found in Records.

	Date	Place	Members in Attendance	President	Vice Presidents	Secretary	Treasurer	Members on Roll*	Honorary Members*	Honorary Fellows*
	1849	Raleigh	25	F. J. Hill		W. H. McKee		25		
1	1850	Raleigh	21	Edmund Strudwick	F. J. Haywood, C. E. Johnson, J. W. Williamson, W. G. Thomas.	W. H. McKee	W. G. Hill	38	9	
2	1851	Raleigh	23	Edmund Strudwick	C. E. Johnson	W. H. McKee	W. G. Hill	46	9	
3	1852	Wilmington	38	J. E. Williamson	Thomas N. Cameron, William G. Hill, Johnston B. Jones, N. J. Pittman.	E. B. Haywood	J. J. W. Tucker	72	12	
4	1853	Fayetteville	24	J. E. Williamson	William G. Hill, Johnston B. Jones, J. B. G. Myers, N. J. Pittman.	W. W. Harris	Daniel Dupree	80	14	
5	1854	Raleigh	37	J. H. Dickson	N. J. Pittman, J. B. G. Myers, J. Graham Tull, A. D. McLean.	S. S. Satchwell	Daniel Dupree	84	17	
6	1855	Salisbury	23	J. H. Dickson	J. Graham Tull, Owen Hadley, A. D. McLean, Hugh Kelly.	S. S. Satchwell	J. B. Dunn	96	18	
7	1856	Raleigh	35	C. E. Johnson	Marcellus Whitehead, E. R. Gibson, Johnston B. Jones, O. F. Manson.	S. S. Satchwell	J. B. Dunn	101	22	
8	1857	Edenton	25	C. E. Johnson	Marcellus Whitehead, O. F. Manson, H. W. Faison, E. T. Gibson.	W. G. Thomas	J. B. Dunn	113	16	
9	1858	New Bern	69	W. H. McKee	Edward Warren, C. W. Graham, Caleb Winslow, A. B. Pierce.	W. G. Thomas	J. B. Dunn	172	18	
10	1859	Statesville	81	W. H. McKee	James G. Ramsey, P. E. Hines, J. R. Mercer, W. T. Howard.	W. G. Thomas	C. W. Graham			
11	1860	Washington	64	N. J. Pittman	P. T. Henry, R. H. Winborne, M. Whitehead, T. S. Leach.	W. G. Thomas	C. W. Graham	233	18	
12	1861	Morganton	23	N. J. Pittman	J. J. Summerell, C. T. Murphy, G. W. Hodges, W. A. B. Norcom.	W. G. Thomas	C. W. Graham	244	18	
13	1866	Raleigh	20	J. J. Summerell		W. G. Thomas	C. W. Graham			
14	1867	Tarboro	41	W. G. Thomas	E. Burke Haywood, R. H. Winborne, W. L. Barrow, J. W. Jones.	S. S. Satchwell	C. W. Graham	288	11	
15	1868	Warrenton	27	S. S. Satchwell	Hugh Kelly, George E. Foote, Charles J. O'Hagan, J. H. Baker.	Thomas F. Wood	J. W. Jones			
16	1869	Salisbury	36	E. Burke Haywood	Thomas E. Wilson, A. B. Pierce, C. T. Murphy, M. A. Locke.	Thomas F. Wood	J. W. Jones			
17	1870	Wilmington	38	C. J. O'Hagan	E. A. Anderson, F. N. Lucky, W. R. Sharpe, R. L. Payne.	Thomas F. Wood	J. W. Jones			
18	1871	Raleigh	35	Hugh Kelly	D. N. Patterson, R. C. Pearson, J. B. Seaby, G. L. Kirby.	Thomas F. Wood	J. W. Jones			
19	1872	New Bern	34	W. G. Hill	H. W. Faison, R. I. Hicks, G. H. Macon, W. A. B. Norcom.	James McKee	J. W. Jones			

20	1873	Statesville	43	M. Whitehead	W. T. Ennett, William Little, Charles Duffy, T. P. Jerman.	James McKee	H. T. Bahnson			
21	1874	Charlotte	56	W. A. B. Norcom	J. B. Jones, R. F. Lewis, C. G. Cox, J. L. Knight.	James McKee	H. T. Bahnson			
22	1875	Wilson	60	J. W. Jones	Walter Debnam, J. A. Gibson, William Little, D. N. Patterson.	James McKee	H. T. Bahnson	148	5	
23	1876	Fayetteville	33	Peter E. Hines	J. H. Baker, G. G. Smith, T. D. Haigh, J. K. Hall.	James McKee	H. T. Bahnson	157	4	
24	1877	Salem	42	George A. Foote	J. K. Hall, B. W. Robinson, A. Holmes, A. A. Hill.	James McKee	A. G. Carr	177	4	
25	1878	Goldsboro	79	R. L. Payne	E. M. Rountree, Richard Anderson, S. B. Flowers, L. A. Smith.	L. J. Picot	A. G. Carr	194	6	
26	1879	Greensboro	109	Charles Duffy, Jr.	J. A. Gibson, Willis Alston, James McKee, A. A. Hill.	L. J. Picot	A. G. Carr	198	6	
27	1880	Wilmington	105	J. F. Shaffner	J. K. Hall, W. C. McDuffie, W. R. Wilson, R. F. Lewis.	L. J. Picot	A. G. Carr	225	6	
28	1881	Asheville	92	R. B. Haywood	J. E. McKee, W. H. Lilly, R. H. Speight, W. J. H. Bellamy.	L. J. Picot	A. G. Carr	254	6	
29	1882	Concord	65	Thomas F. Wood	T. J. Moore, D. J. Cain, S. E. Evans, John McDonald.	L. J. Picot	A. G. Carr	297	7	
30	1883	Tarboro	112	J. K. Hall	A. W. Knox, J. M. Hadley, E. S. Foster, John Whitehead.	L. J. Picot	A. G. Carr	310	7	
31	1884	Raleigh	112	A. B. Pierce	F. W. Potter, G. W. Graham, R. Dillard, G. W. Long.	L. J. Picot	A. G. Carr	348	7	
32	1885	Durham	173	W. C. McDuffie	James McKee, T. E. Anderson, W. H. Whitehead, A. G. Carr.	W. C. Murphy	R. L. Payne, Jr.	424	6	
33	1886	New Bern	113	Joseph Graham	H. T. Bahnson, L. J. Picot, J. L. McMillan, W. W. Faison.	J. M. Baker	R. L. Payne, Jr.	438	7	
34	1887	Charlotte	112	H. T. Bahnson	G. G. Smith, J. L. Nicholson, C. M. Poole, H. B. Ferguson.	J. M. Baker	R. L. Payne, Jr.	452	7	
35	1888	Fayetteville	133	T. D. Haigh	W. P. Ennett, J. A. Dunn, T. E. Anderson	J. M. Baker	C. M. Poole	306	6	
36	1889	Elizabeth City	50	W. T. Ennett	W. J. Jones, S. W. Stevenson, G. W. Long	J. M. Baker	C. M. Poole	410	6	
37	1890	Oxford	160	G. G. Thomas	R. L. Payne, Jr., Richard Dillard, S. W. Booth	J. M. Hays	C. M. Poole	414	6	
38	1891	Asheville	135	R. H. Lewis	S. W. Battle, J. L. Nicholson, W. H. Lilly	J. M. Hays	C. M. Poole	422	6	
39	1892	Wilmington	162	W. T. Cheatham	T. S. Burbank, J. W. Long, W. H. H. Cobb, W. D. Hilliard.	J. M. Hays	C. M. Poole	431	6	
40	1893	Raleigh	221	J. W. McNeill	W. G. Galloway, H. H. Harris, J. M. Hadley, Thomas Hill.	R. D. Jewett	M. P. Perry	447	5	3
41	1894	Greensboro	166	W. H. H. Cobb	J. A. Hodge, R. W. Tate, Willis Alston, M. H. Fletcher.	R. D. Jewett	M. P. Perry	451	5	3
42	1895	Goldsboro		J. H. Tucker	J. Howell Way, W. H. Harrell, O. McMullan C. A. Misenheimer.	R. D. Jewett	M. P. Perry	436	7	3
43	1896	Winston-Salem	158	R. L. Payne	S. D. Booth, J. P. Munroe, J. A. Burroughs, J. E. Grimsley.	R. D. Jewett	M. P. Perry	452	7	3
44	1897	Morehead City	103	P. L. Murphy	J. C. Walton, A. A. Kent, M. R. Adams, B. L. Long.	R. D. Jewett	M P. Perry	406	6	3

ROSTER OF OFFICERS OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA--CONTINUED.

*MISSING DATA NOT TO BE FOUND IN RECORDS.

	Date	Place	Members in Attendance	President	Vice Presidents	Secretary	Treasurer	Members on Roll*	Honorary Members*	Honorary Fellows*
45	1898	Charlotte	------	Francis Duffy	E. C. Register, A. T. Cotton, J. B. H. Knight, F. H. Russell.	R. D. Jewett	M. P. Perry	437	6	21
46	1899	Asheville	152	L. J. Picot	I. W. Faison, J. W. White, H. H. Dodson, W. C. Brownson.	George W. Pressley	G. T. Sikes	489	6	16
47	1900	Tarboro	115	George W. Long	C. M. Poole, James M. Parrott, T. B. Williams, W. D. Hilliard.	George W. Pressley	G. T. Sikes	482	6	21
48	1901	Durham	186	Julian M. Baker	M. H. Fletcher, C. A. Julian, D. A. Stanton, E. M. Summerell.	George W. Pressley	G. T. Sikes	515	5	18
49	1902	Wilmington	147	Robert S. Young	A. G. Carr, E. D. Dixon-Carroll, I. M. Taylor, J. M. Parrott.	George W. Pressley	G. T. Sikes	546	5	20
50	1903	Hot Springs	155	A. W. Knox	E. G. Moore, C. A. Julian, W. W. McKenzie, J. L. Nicholson.	J. Howell Way	G. T. Sikes	530	6	19
51	1904	Raleigh	326	H. B. Weaver	John Hey Williams, John C. Rodman, S. F. Pfohl.	J. Howell Way	G. T. Sikes	1,033	8	17
52	1905	Greensboro	361	David T. Tayloe	C. A. Julian, John T. Burrus, I. W. Faison	J. Howell Way	G. T. Sikes	1,175	8	17
53	1906	Charlotte	406	Edward C. Register	L. B. McBrayer, W. H. H. Cobb, Jr., W. O. Spencer.	J. Howell Way	G. T. Sikes	1,234	8	16
54	1907	Morehead City	217	Samuel D. Booth	C. M. Strong, J. E. McLoughlin, W. F. Hargrave.	David A. Stanton	H. McKee Tucker	888	7	16
55	1908	Winston-Salem	372	J. Howell Way	J. E. Stokes, J. A. Turner, W. H. Dixon	David A. Stanton	H. McKee Tucker	998	7	28
56	1909	Asheville	337	J. F. Highsmith	C. M. Poole, D. A. Garrison, D. O. Dees	David A. Stanton	H. McKee Tucker	1,067	7	25
57	1910	WrightsvilleB'ch	276	E. J. Wood	John Q. Myers, L. D. Wharton	David A. Stanton	H. D. Walker	1,080	8	35
58	1911	Charlotte	412	C. M. VanPoole	J. V. McGougan, W. E. Warren, L. N. Glenn	David A. Stanton	H. D. Walker	880	8	45
59	1912	Hendersonville	296	A. A. Kent	J. P. Munroe, W. P. Horton, J. G. Murphy	David A. Stanton	H. D. Walker	950	8	44
60	1913	Morehead City	232	J. P. Munroe	F. R. Harris, E. S. Bullock, L. B. Morse	John A. Ferrell	H. D. Walker	1,133	8	40
61	1914	Raleigh	431	J. M. Parrott	E. T. Dickinson, J. T. J. Battle, E. Sevier	John A. Ferrell	H. D. Walker	1,228	8	47
62	1915	Greensboro	443	L. B. McBrayer	J. J. Phillips, C. W. Moseley, S. M. Crowell	John A. Ferrell	H. D. Walker	1,221	9	68
63	1916	Durham	406	M. H. Fletcher	J. L. Nicholson, L. N. Glenn, W. H. Hardison	B. K. Hays	W. M. Jones	1,228	10	79
64	1917	Asheville	280	Charles O'H. Laughinghouse.	D. J. Hill, J. L. Sprull, J. H. Shuford	B. K. Hays	W. M. Jones	1,271	11	81

PAST MEMBERS BOARD OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA.

JAMES H. DICKSON, President, Wilmington 1859-1866
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Caleb Winslow, Hertford 1859-1866
Otis F. Manson, Townesville 1859-1866
William H. McKee, Raleigh 1859-1866
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J. Graham Tull, New Bern 1859-1866
SAMUEL T. IREDELL, Secretary 1859-1866

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E. Burke Haywood, Raleigh 1866-1872
R. H. Winborne, Edenton 1866-1872
S. S. Satchell, Rocky Point 1866-1872
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George L. Kirby, Goldsboro 1878-1884
Thomas F. Wood, Wilmington 1878-1884
Joseph Graham, Charlotte 1878-1884
H. T. BAHNSON, Secretary, Salem 1878-1884
R. H. Lewis, Raleigh 1880-1884

WILLIAM R. WOOD, President, Scotland Neck 1884-1890
A. W. Knox, Raleigh 1884-1890
Francis Duffy, New Bern 1884-1890
P. L. Murphy, Morganton 1884-1890
Willis Alston, Littleton 1884-1890
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J. A. Reagan, Weaverville 1884-1890

R. L. Payne, Norfolk, Va. 1890-1892
George W. Purefoy, Asheville 1890-1892
George G. Thomas, Wilmington 1890-1894
Robert S. Young, Concord 1890-1894
George W. Long, Graham 1890-1896

W. H. WHITEHEAD, President, Rocky Mount 1890-1896
L. J. PICOT, Secretary, Littleton 1890-1896

JULIAN M. BAKER, President, Tarboro 1892-1898
H. B. Weaver, Asheville 1892-1898
T. S. Burbank, Wilmington 1894-1898
J. M. Hays, Greensboro 1894-1897

D. T. TAYLOE, President, Washington 1896-1902
R. H. Whitehead, Chapel Hill 1896-1897
THOMAS E. ANDERSON, Secretary, Statesville 1896-1900
Kemp P. Battle, Jr., Raleigh 1897-1902
J. HOWELL WAY, Secretary, Waynesville 1897-1902
W. H. H. Cobb, Goldsboro 1898-1902
Albert Anderson, Raleigh 1898-1902

E. C. REGISTER, President, Charlotte 1898-1902
Thomas S. McMullan, Hertford 1900-1902
John C. Walton, Richmond, Va. 1900-1902
GEORGE W. PRESSLEY, Secretary, Charlotte 1902-1906

A. A. KENT, President, Lenoir 1902-1908
G. T. SIKES, Secretary, Grissom 1906-1908

CHARLES O'HAGAN LAUGHINGHOUSE, Pres't, Greenville 1902-1908

M. H. FLETCHER, President, Asheville 1902-1908
James M. Parrott, Kinston 1902-1908
J. T. J. Battle, Greensboro 1902-1908
Frank H. Russell, Wilmington 1902-1908

JOHN BYNUM, President, Winston-Salem 1908-1914
John C. Rodman, Washington 1908-1914
BENJAMIN K. HAYS, Secretary 1908-1914
Lewis B. McBrayer, Asheville 1908-1914
William W. McKenzie, Salisbury 1908-1914
Henry H. Dodson, Greensboro 1908-1914
J. L. Nicholson, Richlands 1908-1914

BOARD OF MEDICAL EXAMINERS, 1914-1920.

J. F. HIGHSMITH, President, Fayetteville, Anatomy, Histology, and Embryology.
H. A. ROYSTER, Secretary, Raleigh, Surgery.
E. G. Moore, Elm City, Obstetrics, Gynecology, and Pediatrics.
J. G. Blount, Washington, Practice of Medicine.
J. Q. Myers Charlotte, Pharmacology, Materia, Medica, and Therapeutics.
I. M. Taylor, Morganton, Chemistry and Hygiene.
M. L. Stevens, Asheville, Physiology, Pathology, and Bacteriology.
*Charles T. Harper, Wilmington.

*Died 1915.

ROSTER OF MEMBERS NORTH CAROLINA STATE BOARD OF HEALTH, FROM ORGANIZATION IN 1877 TO 1917.

Name.	Address	Appointed by	Term
S. S. Satchwell, M.D., President	Rocky Point	State Society	1877 to 1878
Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1877 to 1878
Joseph Graham, M.D.	Charlotte	State Society	1877 to 1878
Charles Duffy, Jr., M.D.	New Bern	State Society	1877 to 1878
Peter E. Hines, M.D.	Raleigh	State Society	1877 to 1878
George A. Foote, M.D.	Warrenton	State Society	1877 to 1878
S. S. Satchwell, M.D., President	Rocky Point	State Society	1878 to 1884
Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1878 to 1884
Charles J. O'Hagan, M.D., President	Greenville	State Society	1878 to 1882
George A. Foote, M.D.	Warrenton	State Society	1878 to 1882
Marcellus Whitehead, M.D.	Salisbury	State Society	1878 to 1880
R. L. Payne, M.D.	Lexington	State Society	1878 to 1880
H. G. Woodfin, M.D.	Franklin	Gov. Z. B. Vance	1878 to 1880
A. R. Ledeux, Chemist	Chapel Hill	Gov. Z. B. Vance	1878 to 1880
William Cain, Civil Engineer	Charlotte	Gov. Z. B. Vance	1878 to 1880
R. L. Payne, M.D.	Lexington	State Society	1881 to 1887
Marcellus Whitehead, M.D., President	Salisbury	State Society	1881 to 1884
J. M. Lyle, M.D.	Franklin	Gov. T. J. Jarvis	1881 to 1883
William Cain, Civil Engineer	Charlotte	Gov. T. J. Jarvis	1881 to 1883
W. G. Simmons, Chemist	Wake Forest	Gov. T. J. Jarvis	1881 to 1883
J. W. Jones, M.D., President	Wake Forest	State Society	1883 to 1889
John McDonald	Washington	State Society	1883 to 1889
S. H. Lyle, M.D.	Franklin	Gov. T. J. Jarvis	1883 to 1885
W. G. Simmons, Chemist	Wake Forest	Gov. T. J. Jarvis	1883 to 1885
Arthur Winslow, Civil Engineer	Raleigh	Gov. T. J. Jarvis	1883 to 1886
R. H. Lewis, M.D.	Raleigh	State Board of Health	1884 to 1893
Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1885 to 1887
William D. Hillis, M.D.	Asheville	State Society	1885 to 1891
Arthur Winslow, Civil Engineer	Raleigh	Gov. A. M. Scales	1885 to 1891
W. G. Simmons, Chemist	Wake Forest	Gov. A. M. Scales	1885 to 1887
J. H. Tucker, M.D.	Henderson	Gov. A. M. Scales	1885 to 1887
R. H. Lewis, M.D., Secretary	Raleigh	State Society	1887 to 1897
H. T. Bahnson, M.D., President	Winston-Salem	State Society	1887 to 1893
Arthur Winslow, Civil Engineer	Raleigh	Gov. A. M. Scales	1887 to 1888
W. G. Simmons, Chemist	Wake Forest	Gov. A. M. Scales	1887 to 1889
J. H. Tucker, M.D.	Henderson	Gov. A. M. Scales	1887 to 1889
J. L. Ludlow, Civil Engineer	Winston	Gov. A. M. Scales	1888 to 1891
J. H. Tucker, M.D.	Henderson	Gov. D. G. Fowle	1889 to 1891
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. D. G. Fowle	1889 to 1891
J. L. Ludlow, Civil Engineer	Winston	Gov. D. G. Fowle	1889 to 1893
J. A. Hodges, M.D.	Fayetteville	State Society	1889 to 1892
J. M. Baker, M.D.	Tarboro	State Society	1889 to 1893
J. H. Tucker, M.D.	Henderson	Gov. T. M. Holt	1891 to 1893
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. T. M. Holt	1891 to 1893
J. L. Ludlow, Civil Engineer	Winston	Gov. T. M. Holt	1891 to 1892
Thomas F. Wood, M.D., Secretary*	Wilmington	State Society	1891 to 1897
George G. Thomas, M.D., President	Wilmington	State Board of Health	1892 to 1897
S. Westray Battle, M.D.	Asheville	State Society	1891 to 1895
W. H. Harrell, M.D.	Williamston	State Society	1892 to 1895
John Whitehead, M.D.	Salisbury	State Board of Health	1893 to 1895
W. H. G. Lucas	White Hall	Gov. Elias Carr	1893 to 1895
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. Elias Carr	1893 to 1895
John C. Chase, Civil Engineer	Wilmington	Gov. Elias Carr	1893 to 1895
R. H. Lewis, M.D., Secretary	Raleigh	Gov. Elias Carr	1893 to 1895
W. P. Beall, M.D.	Greensboro	Gov. Elias Carr	1894 to 1897
W. J. Lumsden, M.D.	Elizabeth City	Gov. Elias Carr	1895 to 1897
John Whitehead, M.D.	Salisbury	State Society	1895 to 1897
W. H. Harrell, M.D.	Williamston	State Society	1895 to 1897
W. P. Beall, M.D.	Greensboro	Gov. Elias Carr	1895 to 1897
R. H. Lewis, M.D., Secretary	Raleigh	Gov. Elias Carr	1895 to 1897
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. Elias Carr	1895 to 1897
John C. Chase, Civil Engineer	Wilmington	Gov. Elias Carr	1895 to 1897
C. J. O'Hagan, M.D.	Greenville	Gov. D. L. Russell	1897 to 1899
John D. Spicer, M.D.	Goldsboro	Gov. D. L. Russell	1897 to 1899
J. L. Nicholson, M.D.	Richlands	Gov. D. L. Russell	1897 to 1899
R. H. Lewis, M.D., Secretary	Raleigh	Gov. D. L. Russell	1897 to 1899
A. W. Shaffer, Sanitary Engineer	Raleigh	Gov. D. L. Russell	1897 to 1899
Charles J. O'Hagan, M.D.	Greenville	Gov. D. L. Russell	1899 to 1901
J. L. Nicholson, M.D.	Richlands	Gov. D. L. Russell	1899 to 1901
Albert Anderson, M.D.	Wilson	Gov. D. L. Russell	1899 to 1901
R. H. Lewis, M.D., Secretary	Raleigh	Gov. D. L. Russell	1899 to 1901
A. W. Shaffer, Civil Engineer	Raleigh	Gov. D. L. Russell	1899 to 1901
George G. Thomas, M.D., President	Wilmington	State Society	1899 to 1901
S. Westray Battle, M.D.	Asheville	State Society	1899 to 1901
H. W. Lewis, M.D.	Jackson	State Society	1899 to 1901

*Died in 1902, leaving a five-year unexpired term, which was filled by the Board.

ROSTER OF MEMBERS—Continued.

Name	Address	Appointed by	Term
H. H. Dodson, M.D.	Milton	State Society	1899 to 1901
R. H. Lewis, M.D., Secretary	Raleigh	Gov. C. B. Aycock	1901 to 1907
W. P. Ivey, M.D.	Lenoir	Gov. C. B. Aycock	1901 to 1907
George G. Thomas, M.D., President	Wilmington	Gov. C. B. Aycock	1901 to 1905
Francis Duffy, M.D.	New Bern	Gov. C. B. Aycock	1901 to 1905
J. L. Ludlow, Civil Engineer	Winston	Gov. C. B. Aycock	1901 to 1905
S. Westray Battle, M.D.	Asheville	State Society	1901 to 1907
H. W. Lewis, M.D.	Northampton	State Society	1901 to 1907
W. H. Whitehead, M.D.	Rocky Mount	State Society	1901 to 1905
J. L. Nicholson, M.D.	Richlands	State Society	1901 to 1905
J. L. Ludlow, Civil Engineer	Winston	Gov. C. B. Aycock	1903 to 1909
J. Howell Way, M.D.	Waynesville	Gov. R. B. Glenn	1905 to 1911
W. O. Spencer, M.D.	Winston	Gov. R. B. Glenn	1905 to 1911
George G. Thomas, M.D., President	Wilmington	State Society	1905 to 1911
Thomas E. Anderson, M.D.	Statesville	State Society	1905 to 1911
R. H. Lewis, M.D.	Raleigh	Gov. R. B. Glenn	1907 to 1913
E. C. Register, M.D.	Charlotte	Gov. R. B. Glenn	1907 to 1913
David T. Tayloe, M.D.	Washington	State Society	1907 to 1913
James A. Burroughs, M.D.*	Asheville	State Society	1907 to 1909
J. E. Ashcraft, M.D.	Monroe	State Board of Health	1909 to 1913
J. L. Ludlow, Civil Engineering	Winston-Salem	Gov. W. W. Kitchin	1909 to 1915
J. Howell Way, M.D., President	Waynesville	Gov. W. W. Kitchin	1911 to 1917
W. O. Spencer, M.D.	Winston-Salem	Gov. W. W. Kitchin	1911 to 1917
Thomas E. Anderson, M.D.	Statesville	State Society	1911 to 1917
Charles O'H. Laughinghouse, M.D.	Greenville	State Society	1911 to 1917
Richard H. Lewis, M.D.	Raleigh	Gov. Locke Craig	1913 to 1919
Edw. J. Wood, M.D.	Wilmington	Gov. Locke Craig	1913 to 1919
A. A. Kent, M.D.†	Lenoir	State Society	1913 to 1915
Cyrus Thompson, M.D.	Jacksonville	State Society	1913 to 1919
Fletcher R. Harris, M.D.	Henderson	State Board of Health	1915 to 1919
J. L. Ludlow, Civil Engineer	Winston-Salem	Gov. Locke Craig	1915 to 1921
J. Howell Way, M.D., President	Waynesville	Gov. Thos. W. Bickett	1917 to 1923
E. C. Register, M.D.	Charlotte	Gov. Thos. W. Bickett	1917 to 1923
Thomas E. Anderson, M.D.	Statesville	State Society	1917 to 1923
Charles O'H. Laughinghouse, M.D.	Greenville	State Society	1917 to 1923

*Died leaving unexpired term. †Resigned to become member of General Assembly.

STATUS OF SOCIETY MEMBERSHIP BY COUNTIES FOR YEARS 1906–1917.

Counties	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917
Alamance	15	7	17	15	14	12	11	11	13	9	10	12
Alexander *a*	--	--	--	--	--	--	--	--	--	--	--	--
Alleghany	--	--	--	--	--	--	--	--	--	2	2	--
Anson	3	1	3	1	1	1	6	8	7	--	--	--
Ashe	--	--	--	--	1	--	--	--	--	--	--	11
Avery	--	--	--	--	--	--	--	--	8	7	9	9
Beaufort	10	15	15	11	11	10	15	14	14	14	14	10
Bertie	3	4	4	4	5	2	2	2	3	3	3	3
Bladen	4	4	3	3	3	4	4	5	7	7	6	9
Brunswick	4	4	--	4	2	2	2	5	4	5	--	--
Buncombe	37	47	48	54	58	63	64	69	68	70	71	74
Burke	8	10	9	10	13	12	11	13	15	17	17	16
Cabarrus	13	13	17	16	18	21	21	19	22	23	25	20
Caldwell	8	10	12	12	13	12	10	12	12	11	7	9
Camden *b*	--	--	--	--	--	--	--	--	--	--	--	--
Carteret	9	9	10	7	7	6	7	6	7	7	9	7
Caswell	3	3	3	2	1	1	1	1	1	1	1	1
Catawba	8	10	9	12	12	--	--	--	--	15	13	18
Chatham	--	6	1	2	2	6	--	14	15	12	11	11
Cherokee	3	--	--	9	6	7	9	8	7	10	9	11
Chowan-Perquimans	--	--	--	--	--	7	5	8	9	7	4	3
Clay *c*	--	--	--	--	--	--	--	--	--	--	--	--
Cleveland	12	14	14	13	13	14	15	15	16	13	13	16
Columbus	8	9	8	8	8	10	12	12	14	9	11	7
Craven	8	10	14	14	14	12	14	18	15	11	8	11
Cumberland	8	12	12	17	20	20	22	23	22	24	19	17
Currituck	6	6	2	3	6	4	4	4	6	7	6	6
Dare *d*	--	--	--	--	--	--	--	--	--	--	--	--
Davidson	11	12	12	12	13	13	15	13	17	13	9	20
Davie	3	6	6	6	6	5	6	--	--	--	6	5
Duplin	5	8	8	10	10	9	8	9	7	4	7	10
Durham-Orange	16	15	18	24	26	28	31	32	38	40	41	44
Edgecombe	4	8	8	10	10	11	11	11	13	13	13	10
Forsyth	20	21	26	30	25	29	31	32	37	39	42	45
Franklin	8	10	10	9	11	11	11	10	16	12	11	10
Gaston	17	22	25	25	27	29	29	30	27	26	25	27
Gates	4	4	4	--	--	--	--	--	--	--	--	--
Graham	--	--	--	--	--	--	--	--	--	--	--	--
Granville	7	8	11	12	12	8	13	12	14	11	16	16
Greene	4	5	5	6	6	6	5	5	5	5	6	5
Guilford	39	54	62	64	65	56	58	59	62	71	66	68
Halifax	9	10	10	7	6	2	9	11	11	7	15	8
Harnett	13	16	18	19	15	14	17	17	16	17	15	17
Haywood	7	10	11	15	13	10	11	13	15	11	11	11
Henderson-Polk	10	11	15	14	14	17	17	11	14	14	15	15
Hertford	8	8	9	8	6	2	--	8	10	4	1	5
Hoke	--	--	--	--	--	--	--	--	--	--	--	10
Hyde	--	--	5	8	6	6	6	7	7	--	--	--
Iredell-Alexander	19	18	18	18	17	12	9	9	14	16	9	20
Jackson	5	2	2	--	--	--	--	2	3	5	2	5
Johnston	9	11	15	13	15	19	18	18	19	21	19	22
Jones	--	--	--	--	--	--	--	--	--	--	--	--

Counties	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917
Lee	--	--	--	--	--	--	--	7	8	7	8	8
Lenoir	11	12	13	9	12	6	8	9	12	14	15	16
Lincoln	7	8	8	10	10	10	11	12	13	14	11	9
Macon-Clay	3	3	4	5	--	--	--	--	4	4	5	5
Madison	7	11	11	12	--	--	10	7	8	11	9	10
Martin	6	9	9	13	13	13	12	13	14	14	15	17
McDowell	8	7	--	8	4	5	6	6	7	7	7	8
Mecklenburg	31	37	54	51	57	44	50	63	69	71	74	63
Mitchell	--	3	4	7	4	5	5	4	2	2	2	1
Montgomery	5	6	8	7	9	7	7	8	6	10	9	9
Moore	17	2	14	10	11	21	21	13	16	15	18	10
Nash	--	--	--	--	--	--	1	--	19	18	26	27
New Hanover	15	20	21	23	21	21	22	31	28	33	41	30
Northampton	7	9	9	8	11	9	1	12	12	11	10	14
Onslow	3	4	4	4	6	11	10	12	10	8	9	11
Orange *e*	1	1	1	1	1	1	1	8	--	--	--	--
Pamlico	2	3	4	5	4	4	4	5	5	5	5	5
Pasquotank-Camden-Dare	11	11	10	10	11	12	12	13	15	15	17	19
Pender	--	--	--	--	2	2	2	2	--	--	--	--
Perquimans *f*	--	--	--	--	--	--	--	--	--	--	--	--
Person	6	7	8	9	9	10	11	11	8	11	13	12
Pitt	11	11	9	14	10	10	5	9	5	15	9	14
Polk *g*	--	--	--	--	--	--	--	--	--	--	--	--
Randolph	6	6	9	9	10	8	9	7	12	14	11	13
Richmond	11	11	11	1	12	1	10	--	10	13	13	14
Robeson	16	24	24	20	15	22	23	35	24	16	22	16
Rockingham	2	5	5	1	16	16	16	18	19	17	10	4
Rowan	19	27	25	23	24	26	24	23	26	22	25	23
Rutherford	15	16	17	22	23	24	18	19	20	19	21	14
Sampson	7	9	11	10	11	11	12	12	14	14	18	15
Scotland	7	8	11	10	11	9	9	11	12	12	12	13
Stanly	9	9	9	8	11	10	11	11	13	14	9	14
Stokes	11	5	10	11	9	10	11	7	12	13	12	10
Surry	10	13	15	15	15	13	14	19	21	19	18	23
Swain	6	6	6	8	--	--	--	--	--	--	--	6
Transylvanis	8	4	4	1	--	5	5	6	7	6	7	5
Tyrrell *h*	--	--	--	--	--	--	--	--	--	--	--	--
Union	9	14	14	14	14	15	16	17	16	16	12	13
Vance	6	6	8	9	12	11	11	11	10	11	13	10
Wake	39	42	44	49	53	56	54	41	53	57	62	70
Warren	--	--	2	--	--	4	5	5	5	8	7	7
Washington-Tyrrell	3	4	5	10	11	11	11	11	9	9	11	8
Watauga	--	--	--	--	--	--	--	--	--	--	--	--
Wayne	10	10	13	10	--	--	16	19	13	7	17	19
Wilkes	6	7	8	8	11	11	6	9	8	7	6	9
Wilson	10	12	12	16	17	17	17	17	24	22	22	24
Yadkin	9	10	11	8	6	6	6	7	7	6	--	--
Yancey	2	--	4	3	--	--	--	--	--	--	--	--
Totals	769	865	979	1012	997	996	1036	1133	1220	1221	1228	1271

a See Iredell; *b* see Pasquotank; *c* see Macon; *d* see Pasquotank; *e* see Durham; *f* see Chowan; *g* see Henderson: *h* see Washington.

HONORARY FELLOWS, MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA.

Adams, M. R. ..... Statesville
Anderson, T. E. ..... Statesville
Asbury, F. E. ..... Worthville
Attmore, G. S. ..... Stonewall
Bahnson, H. T. ..... Winston-Salem
Baker, J. M. ..... Tarboro
Battle, K. P., Jr. ..... Raleigh
Battle, Samuel Westray ..... Asheville
Beall, W. P. ..... Greensboro
Bellamy, W. J. H. ..... Wilmington
Bolton, M. ..... Rich Square
Booth, S. D. ..... Oxford
Bulluck, D. W. ..... Wilmington
Clark, G. L. ..... Clarkton
DeArman, J. McC. ..... Charlotte
Denny, W. L. ..... Pink Hill
Dillard, Richard ..... Edenton
Duffy, Francis ..... New Bern
Edwards, G. C. ..... Hookerton
Faison, I. W. ..... Charlotte
Faison, W. W. ..... Goldsboro
Fletcher, M. H. ..... Asheville
Fox, M. F. ..... Guilford College
Freeman, R. A. ..... Burlington
Galloway, W. C. ..... Wilmington
Hall, Wright ..... Wilmington
Hargrove, R. H. ..... Robersonville
Harris, F. R. ..... Henderson
Harris, I. A. ..... Buncombe
Hicks, W. N. ..... Durham
Hill, L. H. ..... Germantown
Hunter, L. W. ..... Sardis
Irwin, J. R. ..... Charlotte
Johnson, N. M. ..... Durham
Jordan, T. M. ..... Raleigh
Knox, A. W. ..... Raleigh
Lewis, R. H. ..... Raleigh
Long, J. W. ..... Greensboro
Love, W. J. ..... Wilmington
McDonald, A. D. ..... Wilmington
McMillan, B. F. ..... Red Springs
McMillan, J. D. ..... Edenton
McMillan, J. L. ..... Red Springs
McMillan, W. D. ..... Wilmington
McNeill, J. W. ..... Fayetteville
Meisenheimer, C. A. ..... Charlotte

Meisenheimer, T. T. ..... Morven
Moore, C. E. ..... Wilson
Nicholson, J. L. ..... Richlands
Noble, R. J. ..... Selma
Nobles, J. E. ..... Greenville
Perry, M. P. ..... Macon
Pharr, T. F. ..... Concord
Pharr, W. W. ..... Charlotte
Picot, L. J. ..... Raleigh
Prince, D. M. ..... Laurinburg
Ritten, F. W. ..... Moyock
Royster, W. I. ..... Raleigh
Schonwald, J. L. ..... Wilmington
Shaffner, T. F. ..... Winston-Salem
Sikes, G. T. ..... Grissom
Smith, R. A. ..... Goldsboro
Speight, R. H. ..... Whitakers
Stevens, J. A. ..... Clinton
Tayloe, D. T. ..... Washington
Taylor, I. M. ..... Morganton
Thomas, G. G. ..... Wilmington
Trantham, H. L. ..... Salisbury
Tull, Henry ..... Kinston
VanPoole, C. M. ..... Salisbury
Ward, W. H. ..... Plymouth
Way, J. Howell ..... Waynesville
Weaver, H. B. ..... Asheville
Whitaker, R. A. ..... Kinston
Whitehead, John ..... Salisbury
Whitehead, J. W. ..... Salisbury
Whitfield, W. C. ..... Grifton
Whittington, W. P. ..... Asheville
Williams, J. H. ..... Asheville
Wilson, A. R. ..... Greensboro

HONORARY MEMBERS, MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA.

L. McL. Tiffany ..... Baltimore, Md
W. W. Keen ..... Philadelphia, Pa.
J. Allison Hodges ..... Richmond, Va.
R. L. Payne ..... Norfolk, Va.
J. N. McCormack ..... Bowling Green, Ky.
R. L. Payne, Jr ..... Norfolk, Va.
J. L. Ludlow, C.E ..... Winston-Salem
Paul V. Anderson ..... Richmond, Va.
Stuart McGuire ..... Richmond, Va.
William J. Mayo ..... Rochester, Minn.
William Seaman Bainbridge ..... New York, N. Y.

OFFICERS FOR 1916-1917.

President—Dr. Charles O'H. Laughinghouse.....Greenville
First Vice-President—Dr. D. J. Hill.....Lexington
Second Vice-President—Dr. J. L. Spruill.....Columbia
Third Vice-President—Dr. J. H. Shuford.....Hickory
Secretary—Dr. B. K. Hays.....Oxford
Treasurer—Dr. W. M. Jones.....Greensboro

COUNCILORS 1916-1919.

First District—Dr. W. H. Ward.....Plymouth
Second District—Dr. K. P. B. Bonner.....Morehead City
Third District—Dr. Ernest S. Bulluck.....Wilmington
Fourth District—Dr. M. M. Saliba.....Wilson
Fifth District—Dr. Ben. Hackney.....Bynum
Sixth District—Dr. A. C. Campbell.....Raleigh
Seventh District—Dr. J. E. S. Davidson.....Charlotte
Eighth District—Dr. J. W. Ring.....Elkin
Ninth District—Dr. M. R. Adams.....Statesville
Tenth District—Dr. C. V. Reynolds.....Asheville

OFFICERS 1917-1918.

President—Dr. Isaac W. Faison.....Charlotte
First Vice-President—Dr. Wm. deB. MacNider.....Chapel Hill
Second Vice-President—Dr. Joseph B. Greene.....Asheville
Third Vice-President—Dr. Ben. F. Royall.....Morehead City
Secretary—Dr. B. K. Hays.....Oxford
Treasurer—Dr. W. M. Jones.....Greensboro

CHAIRMEN OF SECTIONS, PINEHURST MEETING, 1918.

Practice of Medicine:
Dr. John Whitehead, Salisbury.

Surgery:
Dr. L. W. Kornegay, Rocky Mount.

Gynecology:
Dr. C. M. Strong, Charlotte.

Pediatrics:
Dr. A. S. Root, Raleigh.

Health and Education:
Dr. Chas T. Nesbitt, Wilmington.

Physiology and Chemistry:
Dr. L. H. Webb, Chapel Hill.

Pathology and Bacteriology:
Dr. T. M. West, Fayetteville.

Anotomy:
Dr. G. Alfred Aiken, Wake Forest.

Obstetrics:
Dr. J. G. Blount, Washington.

Materia Medica and Therapeutics:
Dr. Chas. W. Moseley, Greensboro.

Eye, Ear, Nose and Throat:
Dr. J. W. McConnell. Davidson.

PROGRAM

Opening Session, Tuesday, April 17, 1917, 10 a. m., Battery Park Hotel.

Call to Order—Dr. Joseph B. Greene, chairman Committee on Arrangements, Asheville.

Invocation—Rev. Willis G. Clark.

Address of Welcome—Mr. D. Hiden Ramsey, Commissioner of Public Safety.

Response—Dr. L. J. Picot, Littleton.

President's Annual Address—Dr. Charles O'H. Laughinghouse, Greenville.

Report of Committee on Arrangements.

Report of Special Committees.

Announcements.

SECTION ON PRACTICE OF MEDICINE.

Dr. E. C. Register, *Chairman*, Charlotte.

"*The Vaccine Treatment in Typhoid Fever*—Dr. E. C. Register, Charlotte.

"*Diseases of the Conus Terminalis and the Cord Compression Syndrome*"—Dr. R. F. Leinbach, Charlotte. (To be discussed with next paper.)

"*Sensory Factors Other Than Brain in the Interpretation of Disease*"—Dr. Tom. A. Williams, Washington, D. C.. Discussion opened by Dr. John McCampbell.

"*Chronic Nephritis, or Bright's Disease*"—Dr. H. Bascom Weaver, Asheville. Discussion opened by Dr. T. W. Davis and Dr. W. F. Cole.

"*The Position of Focal Infection in Medicine*"—Dr. Edward J. Wood, Wilmington. Discussion opened by Dr. G. S. Watkins and Dr. J. W. Vernon.

Symposium.

a. "*The Pathology of Syphilis*"—Dr. J. E. S. Davidson, Charlotte.

b. "*Syphilis of Central Nervous System*"—Dr. J. P. Munroe, Charlotte.

c. "*Lues of the Stomach*"—Dr. W. O. Nesbit, Charlotte.

d. "*Paresis*"—Dr. John Q. Myers, Charlotte.

e. "*Presenting Symptoms in Three Hundred Consecutive Cases of Syphilis*"—Drs. Robert H. Lafferty and S. R. Thompson, of Charlotte. Discussion opened by Dr. R. T. Upchurch and Dr. R. B. Hayes.

"*Some Phases of Poliomyelitis*"—Dr. Robert A. Moore, Charlotte.

"*The Status of Morphinism—Past and Present*"—Dr. S. M. Crowell, Charlotte.

"*Our Duty to Our Country in War and Peace*"—Dr. C. M. VanPoole, Salisbury.

"*The Influence of the Upper Air-Tract on Respiration*"—Dr. M. M. Saliba, Wilson.

"*Some Suggestions in the Administration of Anesthetics*"—Dr. J. C. Montgomery, Charlotte.

Subject Unannounced—Dr. Ernest Bulluck, Wilmington.

"*Medical Expert Testimony Before the Courts*"—Dr. A. W. Knox, Raleigh.

SECTION ON SURGERY.

DR. ALBERT D. PARROTT, *Chairman*. Kinston.

"*Focal Infections*"—DR. ALBERT D. PARROTT, Kinston.

"*Pre and Post Operative Care of Prostatectomies with Report of Fifty-five Consecutive Cases*"—DR. A. J. CROWELL, Charlotte. Discussion opened by DR. H. H. BASS and DR. L. S. BOOKER.

"*A Report of Surgical Work Done in North Carolina During the Years 1915 and 1916*"—DR. J. F. HIGHSMITH, Fayetteville. Discussion opened by DR. J. E. STOKES and DR. W. H. FURMAN.

"*The Value of Roentgen-ray Therapy with Special Reference to Post Operative Roentgen Treatment of Carcinoma of the Breast*"—DR. J. W. SQUIRES. Charlotte. Discussion opened by DR. W. D. JAMES and DR. J. B. RIDDLE.

"*Goitre—Illustrative Cases—Lantern Slides*"—DR. ADDISON BRENIZER, Charlotte. Discussion opened by DR. T. M. WEST and DR. W. L. GRIMES.

"*Treatment of Suppurative Appendicitis*"—DR. EUGENE B. GLENN, Asheville. Discussion opened by DR. A. DeT. VALK and DR. J. H. SAUNDERS.

"*Purgation Means Perforation*"—DR. T. E. WILKERSON, Raleigh. Discussion opened by DR. JAMES W. DAVIS and DR. J. N. HILL.

TUESDAY EVENING, 8 O'CLOCK.

"*Early History of the Medical Society of the State of North Carolina*"—Illustrated lecture. DR. JOHN W. LONG, Greensboro.

DISCUSSION OF CERTAIN BORDER LINE PROBLEMS.

(a) *Cholecystectomy v. Cholecystostomy.*

(b) *Treatment of Gastric and Duodenal Ulcer.*

(c) *Relationship of Thyroid to Exophthalmic Goitre*—DR. GEORGE W CRILE, Cleveland, Ohio.

WEDNESDAY MORNING, APRIL 18, 9:30 O'CLOCK.

SECTION ON PUBLIC HEALTH AND EDUCATION.

DR. D. C. ABSHER, *Chairman*, Henderson.

"*Rural Sanitation*"—DR. B. E. WASHBURN, Wilson. Discussion opened by DR. P. R. HARDEE and DR. J. C. BRASWELL.

"*The Fight Against Tuberculosis with the County as the Unit*"—DR. L. B. McBRAYER, Sanatorium. Discussion opened by DR. E. F. STRICKLAND and DR. S. H. CANNADY.

"*Giving the Average Man a Chance to Live*"—HON. H. A. DENNIS, Associate Editor *Henderson Daily Dispatch*, Henderson.

"*Is Public Health Work in Conflict with the Business Interest of the Medical Profession?*"—DR. W. S. RANKIN, Raleigh. Discussion opened by DR. T. L. BOOTH and DR. F. C. HYATT.

"*The Control of the Preventable Diseases of Children*"—DR. J. C. WIGGINS, Winston-Salem. Discussion opened by DR. LEWIS WEBB HILL.

"*Health Insurance*"—DR. JOSEPH B. GREENE, Asheville.

"*Oral Hygiene*"—J. C. WATKINS, D.D.S., chairman Oral Hygiene Committee of the State Dental Society, Winston-Salem.

"*Disinfection After the Common Infectious Diseases*"—DR. CHARLES T. NESBIT, Wilmington.

CONJOINT SESSION.

WEDNESDAY, APRIL 18, 12 O'CLOCK.

MEMBERS STATE BOARD OF HEALTH.

DR J. HOWELL WAY, *President*.....Waynesville
RICHARD H. LEWIS, M.D., LL.D.....Raleigh
J. C. LUDLOW, C.E.....Winston-Salem
DR. W. O. SPENCER.....Winston-Salem
DR. THOMAS E. ANDERSON.....Statesville
DR. CHARLES O'H. LAUGHINGHOUSE.....Greenville
DR. EDWARD J. WOOD.....Wilmington
DR. F. R. HARRIS.....Henderson
DR. CYRUS THOMPSON.....Jacksonville

EXECUTIVE STAFF STATE BOARD OF HEALTH.

DR. W. S. RANKIN.....Secretary and Treasurer
DR. C. A. SHORE.....Director State Laboratory Hygiene
WARREN H. BOOKER, C.E., Chief of Bureau Engineering and Education
DR. J. R. GORDON.....Chief of Bureau Vital Statistics
DR. L. B. MCBRAYER.....Superintendent State Sanatorium
DR. GEORGE COOPER.....Chief of Bureau Rural Sanitation
MISS MARY ROBINSON.....Bookkeeper

ORDER OF BUSINESS.

1. Report of work accomplished, and recommendations.
2. Discussions.
3. Election of officers.
4. New business.

WEDNESDAY MORNING, APRIL 18, 9:30 O'CLOCK

SECTION ON GYNECOLOGY.

DR. NUMA D. BITTING, *Chairman*, Durham.

"*Progress in Gynecology*"—DR. NUMA D. BITTING, Durham.

"*Ureter Stricture*"—Report of one hundred cases, with lantern slide demonstration. DR. GUY L. HUNNER, Baltimore.

"*Relations Between the Thyroid Gland and the Organs of the Pelvis*"—DR. ADDISON G. BRENIZER, Charlotte. Discussion opened by DR. J. L. ADAMS and DR. DELIA DIXON CARROLL.

The Prevention of Anesthetic Shock"—DR. T. KERNS, Durham. Discussion opened by DR. C. O. ABERNETHY and DR. W. N. THOMAS.

"*A Gynecological Diagnosis.*—DR. H. A. ROYSTER, Raleigh. Discussion opened by DR. A. T. PRITCHARD and DR. B. G. ALLEN.

"*Pre-cancerous Lesions of the Uterus and Vagina*"—DR. C. S. LAWRENCE, Winston-Salem. Discussion opened by DR. L. N. GLENN and DR. J. F. ROBERSON.

"*Uterine Syphilis*"—DR. OREN MOORE, Charlotte. Discussion opened by DR. M. H. BIGGS and DR. C. M. STRONG.

SECTION ON EYE, EAR, NOSE, AND THROAT.

Dr. E. R. Russell, *Chairman*, Asheville.
Dr. J. G. Murphy, *Secretary*, *Wilmington*.

"*The Other Side of Our Work*"—Dr. E. Reid Russell.

"*Preliminary Iridectomy for Choice*"—Dr. K. P. Battle, Jr., Raleigh. Discussion opened by Drs. T. B. Henderson, R. S. Beam, J. H. Honnett, H. A. Wakefield.

"*Trachoma—With Special Reference to Its Prevalence in North Carolina*"—Dr. John W. MacConnell, Davidson. Discussion opened by Drs. J. P. Matheson, M. C. Horton, J. G. Murphy, J. M. Lilly.

"*Headaches in Children—Ciliary Strain*"—Dr. C. M. Peeler, Charlotte. Discussion opened by Drs. J. A. MacKethan, M. L. Smoot, J. R. Perkins.

"*Exact Methods in Testing Refraction*"—Dr. Gaillard S. Tennent, Asheville. Discussion opened by Drs. R. G. Buckner, R. H. Lewis, A. M. Whisnant, R. V. Brawley.

"*The Barany Tests*"—Dr. H. H. Briggs, Asheville. Discussion opened by Drs. J. B. Wright, J. W. Austin, F. A. Carpenter, J. H. Tucker.

"*Hospital Surgery, the Routine*"—Dr. M. R. Gibson, Raleigh. Discussion opened by Drs. F. J. Pate, S. D. McPherson, J. W. Austin.

"*Headache and Some of the Causes*"—Dr. M. A. Royal, Elkin. Discussion opened by Drs. C. W. Banner, T. W. Davis, J. M. Crawford, R. V. Brawley.

Subject Not Announced—Dr. H. W. Carter, Washington.

"*Acute Otitis Media*"—Dr. H. M. Bonner, New Bern. Discussion opened by Dr. W. W. Sawyer, Dr. Moses Brawley, Dr. John LeGwin.

Wednesday Afternoon, 2 O'clock.

MEDICAL PREPAREDNESS SYMPOSIUM.

Dr. J. W. Long, chairman State Committee on Medical Preparedness.

Dr. G. W. Crile, member of Committee of American Physicians on Medical Preparedness.

Reports from Counties.

General Discussion and Organization.

Drive to Biltmore.

Dairy Lunch.

Wednesday Evening, 8 O'clock.

"*North Carolina Hospitals*" (lantern slide illustrations)—Drs. J. T. Burrus and H. W. McCain, High Point.

Report of Obituary Committee—Dr. A. W. Knox, *Chairman*, Raleigh.

Thursday Morning, April 19, 9:30 O'clock.

SECTION ON PEDIATRICS.

S. F. Pfohl, *Chairman*, Winston-Salem.

"*Causes and Treatment of Eczema in Infancy and Childhood*"—Dr. J. B. Sidbury, Wilmington. Discussion opened by Drs. L. D. Bryan, L. D. Wharton, N. C. Daniel, and T. W. Summer.

"*Tuberculosis in Children*"—Dr. Jesse R. Gerstley, Chicago. Discussion opened by Drs. I. W. Faison, C. P. Ambler, M. L. Stevens, and B. O. Landis.

"*Hemorrhagic Diseases of the New-Born*"—Dr. Lewis W. Elias, Asheville. Discussion opened by Drs. Charles Roberson, H. W. McCain, and R. P. Noble.

"*The Diarrhœal Diseases of Infancy and Childhood: Their Differentiation and Treatment*"—Dr. Lewis Webb Hill, Boston, Mass. Discussion opened by Drs. Yates Faison, M. A. Bowers, and Wade Anderson.

"*Focal Infections of Childhood*"—Dr. Thomas W. Davis, Winston-Salem Discussion opened by Drs. F. M. Harris, N. H. Crews, and S. W. Rankin

"*Habits Good and Bad During the First Year of Childhood*"—Dr. K. P. B. Bonner, Morehead City. Discussion opened by Drs. E. P. Gray, W. L. Taylor, and R. T. Upchurch.

"*Pyloric Stenosis*"—Dr. John R. Ashe, Charlotte. Discussion opened by Drs. Lewis W. Ellis, A. DeT. Valk, C. A. Woodard, and Seavy Highsmith.

"*Some Types of the Summer Diarrhœas of Infants*"—Dr. A. J. Ferrell, Black Mountain. Discussion opened by Drs. C. E. Cotton, T. M. Chaney, and F. R. Taylor.

"*Acute Intestinal Toxemias in Childhood*"—Dr. Charles E. Cheek, Fuquay Springs. Discussion opened by Dr. J. F. Sanderford.

"*A Case History*"—Dr. F. M. Register, Tillery.

Thursday, April 19.

SECTION ON MATERIA MEDICA AND THERAPEUTICS.

Dr. T. C. Johnson, *Chairman*, Lumberton.

"*Should We Be More Conservative in the Use of the Artificial Pneumothorax?*"—Dr. John Roy Williams, Asheville.

"*Some Suggestions in Regard to the Care and Treatment of Alcoholic and Drug Habitués*"—Dr. W. C. Ashworth, Greensboro.

Thursday, April 19, 9:30 O'clock.

PATHOLOGY AND BACTERIOLOGY.

Dr. A. S. Pendleton, *Chairman*, Raleigh.

"*The Pathology of the Spinal Fluid in Syphilis and How It Is Affected by Treatment in Cerebro-spinal Syphilis*"—Dr. A. S. Pendleton, Raleigh.

Thursday Morning, April 19.

SECTION ON OBSTETRICS.

Dr. Mark T. Frizzelle, *Chairman*, Ayden.

"*The Elimination of Ignorant Midwifery: Either Its Education, Licensure, and Supervision, or Its Suppression*"—Dr. M. T. Frizzelle, Ayden. Discussion opened by Dr. E. C. Ashby, Mount Airy; Dr. L. W. Elias, Asheville; Dr. T. D. Kitchin, Scotland Neck; Dr. J. M. Templeton, Cary

"*A Plea for a More Circumspect Obstetrical Practice*"—Dr. S. S. Coe, High Point. Discussion opened by Dr. D. A. Stanton, High Point; Dr. J. W. McGehee, Reidsville; Dr. J. L. Adams, Asheville; Dr. W. P. Beall, Greensboro.

"*The Necessity of Making a Rapid and Correct Diagnosis in the Treatment of Postpartum Hemorrhage*"—Dr. R. L. Payne, Monroe. Discussion opened by Dr. O. B. Ross, Charlotte; Dr. B. H. Hackney, Bynum; Dr. L. H. Webb, Chapel Hill; Dr. H. D. Stewart, Monroe.

"*Blood Transfusion in Severe Postpartum Hemorrhage—The Responsibility of the Accoucheur*"—Dr. W. T. Parrott, Kinston. Discussion opened by Dr. W. H. Furman, Henderson; Dr. M. H. Biggs, Rutherfordton; Dr. E. T. Dickinson, Wilson; Dr. R. W. Spicer, Goldsboro.

"*The Use and Abuse of Pituitrin in Labor*"—Dr. E. G. Moore, Elm City. Discussion opened by Dr. W. D. James, Hamlet; Dr. C. S. Lawrence, Winston-Salem; Dr. W. H. Wadsworth, Concord; Dr. M. A. Foil, Mount Pleasant.

"*The Indications for Cesarean Section*"—Dr. C. P. Bolles, Wilmington. Discussion opened by Dr. J. B. Cranmer, Wilmington; Dr. T. M. Green, Wilmington; Dr. J. W. Harper, Wilmington.

SECTION ON ANATOMY.

Dr. Richard N. Duffy, *Chairman*, New Bern.

"*Cysts of Stenson's Duct*"—Dr. Richard N. Duffy, New Bern.

"*Anatomical Abnormalities of the Kidneys*"—Dr. R. L. Gibbon, Charlotte.

"*Some Anatomical Considerations in the Treatment of Injuries to the Head*"—Dr. John L. Nicholson, Washington.

"*Pyloric Stenosis in Infants*"—Dr. Thomas M. Green, Wilmington.

"*Varicosity in the Broad Ligaments*"—Dr. J. W. Tankersley, Wilmington.

"*Traumatic Diverticulitis*"—Dr. Ben F. Royall, Morehead City.

MINUTES

OF THE

STATE MEDICAL SOCIETY

TUESDAY MORNING, APRIL 17, 1917.

Called to order by Dr. Joseph B. Greene, chairman Committee of Arrangements.

Invocation: Rev. Willis G. Clark.

Address of welcome: Mr. D. Hiden Ramsey, Commissioner of Public Safety, Asheville.

Response to address of welcome: Dr. Cyrus Thompson.

President's annual address: Dr. Charles O'H. Laughinghouse.

President's address, on motion, referred to special committee for consideration.

Report of Committee on Arrangements.

Resolution by Dr. Way with regard to meeting of South Carolina Society.

Section on Practice of Medicine.

Papers read:

Diseases of the Conus Terminalis and the Cauda Equinas—R. F. Leinbach, M.D.

Morbid Sensations of Unpleasant or Incommoding Nature; Their Significance as Harbingers of Grave Disease—Tom A. Williams, M.D.

Medico Legal Aspects of Injuries to the Spinal Cord Due to Traumatism—J. P. Munroe, M.D.

Section on Surgery:

Dr. J. W. Long in chair.

Papers read:

A report of Surgical Work Done in North Carolina During the Years 1915 and 1916—J. F. Highsmith, M.D., Fayetteville.

The Value of Röntgen Ray Therapy with Special Reference to Post-operative Röntgen Treatment of Carcinoma of the Breast—J. W. Squires, M.D.

Tuesday Afternoon.

Meeting of House of Delegates.

Section on Practice of Medicine:

Papers read:

The New Conception of Heart Disease—Edward J. Wood, M.D.

Chronic Nephritis, or Bright's Disease—Bascom H. Weaver, M.D.

The Pathology of Syphilis—J. E. S. Davidson, M.D.

Gastric Syphilis—W. O. Nesbitt, M.D.

Paresis—John Quincy Myers, M.D.

Presenting Symptoms in 300 Consecutive Cases of Syphilis—Drs. R. H. Lafferty and S. R. Thompson.

Some Phases of the Treatment of Poliomyelitis—Robert A. Moore, M.D.

The Influence of the Upper Air Tract on Respiration—Michael Saliba, M.D.

Medical Expert Testimony before the Courts—A. W. Knox, M.D.

Section on Surgery:

Papers read:

Goiter-Illustrative Cases—Lantern Slides—Addison Brenizer, M.D.

Pre- and Post-operative Care of Prostatectomies with Report of Fifty-five Consecutive Cases—A. J. Crowell, M.D.

Treatment of Abscessed Appendix—Eugene B. Glenn, M.D..

Purgation Means Perforation—T. E. Wilkerson, M.D.

Traumatic Diverticulitis—Ben F. Royall, M.D.

Tuesday Evening.

Early History of the Medical Society of the State of North Carolina—John Wesley Long, M. D.

Discussion of Certain Border Line Problems—George W. Crile, M.D.

(a) Cholecystectomy versus Cholecystostomy. (With notes on Technique and Complications).

(b) Treatment of Gastric and Duodenal Ulcer.

(c) Relationship of the Thyroid to Graves's Disease.

Wednesday Morning.

Section on Public Health and Education.

Papers read:

Some Phases of Rural Sanitation—B. E. Washburn, M.D.

The Fight Against Tuberculosis with the County as the Unit—L. B. McBrayer, M.D.

Giving the Average Man a Chance to Live—Mr. Henry Arnold Dennis, Associate Editor Henderson Daily Dispatch, Henderson.

The Relation of Public Health Work to the Business Interest of the Medical Profession—W. S. Rankin, M.D.

The Control of the Preventable Diseases of Children—J. C. Wiggins, M.D.

Health Insurance—Joseph B. Greene, M.D.

Telegram from Dr. John A. Ferrell, of the International Health Board, read by Dr. D. C. Absher.

Section on Gynecology.

Papers read:

The Prevention of Anesthetic Shock—T. Kerns, M.D.

A Gynecological Diagnosis—H. A. Royster, M.D.

Pre-Cancerous Lesions of the Uterus and Vagina—C. S. Lawrence, M.D.

Uterine Syphilis—Oren Moore, M.D.

Section on Ear, Eye, Nose and Throat.

Opening Remarks—E. Reid Russell, M.D.

Papers read:

The Other Side of Our Work—E. Reid Russell.

Preliminary Iridectomy—K. P. Battle, M.D.

Trachoma, with Special Reference to its Occurrence in North Carolina—John W. MacConnell, M.D.

Headaches in Children—Ciliary Strain—C. N. Peeler, M.D.

Exact Methods in Estimating the Refraction—Gaillard S. Tennent, M.D.

The Barany Tests—H. H. Briggs, M.D.

Report from the House of Delegates.

Conjoint Session of State Board of Health with North Carolina Medical Society.

Medical Preparedness—John Wesley Long, M. D.

WEDNESDAY EVENING.

North Carolina Hospitals—Drs. J. T. Burrus and H. W. McCain.

Report of Committee on President's Annual Address.

Report of Committee Relative to Increased Dues.

Report of Obituary Committee.

Thursday Morning.

Section on Pediatrics:

Dr. D. H. Hill in the chair.

Papers read:

Causes and Treatment of Eczema in Infancy and Childhood—J. B. Sidbury, M.D.

Tuberculosis in Infancy—Jesse R. Gerstley, M.D.

Nomination of committee on reports.

Hemorrhagic Diseases of the New Born—Lewis W. Elias.

The Diarrheal Diseases of Infancy and Childhood: Their Differentiation and Treatment—Lewis Webb Hill, M.D.

Focal Infections of Childhood—T. W. Davis, M.D.

Appointment of honorary members of the Society.

Resolution of thanks to the entertaining committee.

TRANSACTIONS

OF THE

Sixty-fourth Annual Meeting of the Medical Society of the State of North Carolina

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OPENING SESSION.

TUESDAY MORNING, April 17, 1917.

DR. JOSEPH B. GREENE, Asheville, Chairman Committee on Arrangements: I take pleasure in calling together this the Sixty-fourth Annual Meeting of the North Carolina Medical Society.

Before proceeding further with the program we will have a prayer by Rev. Willis G. Clark, Rector of Trinity Episcopal Church, Asheville.

INVOCATION.

REV. WILLIS G. CLARK, RECTOR TRINITY EPISCOPAL CHURCH, ASHEVILLE.

O Blessed Lord, Jesus Christ, who didst perform the functions of the physician of the body as well as those of the physician of the soul and teacher of the Truth of God, and didst thus sanctify the calling of the doctor and consecrate his work to bear witness to Thine everlasting Truth, we beseech Thee to be with these doctors in convention assembled; bless, direct and prosper their consultations to the advancement of Thy Kingdom.

And grant, O Lord, that they may carry on their work and enter into their deliberations, prompted by the highest motives of their calling, so that human suffering and pain might by their endeavors be more and more alleviated, and Thy children taught better how to conform to the laws of hygiene which Thou hast set, for the government of the health of the physical body of man.

And we beseech Thee, further, O Lord, to grant to each man here the ability to see that he is nothing less than an instrument in Thy hands, to carry on the blessed work that Thou hast called him to do under the name of surgeon or physician; and give us all grace to so serve

Thee amidst all the changes and chances of this temporal life that when the time comes for us to answer the inevitable call we may be found acceptable unto Thee.

These and all other things that Thou seest we have the need of. we ask in Thy name, O Lord Jesus, whom with the Father and the Holy Spirit we worship and glorify as one God, world without end. Amen.

Dr. Joseph B. Greene: Members of the Society, we will now hear the words of welcome from our Commissioner of Public Safety, Mr. D. Hiden Ramsey.

ADDRESS OF WELCOME.

D. Hiden Ramsey, Commissioner of Public Safety, Asheville.

It is my very pleasant but undoubtedly superfluous duty to tell you that the people of Asheville are very glad at this time to serve as the hosts of the North Carolina Medical Society. Most assuredly the sincerity of our hospitality is so apparent as to require no studied speech in explanation. But custom demands that there be an official welcome from the city of Asheville, and even on such a delightful occasion as this we must curtsey to custom. As the mayor unfortunately is unable to be present, I have been delegated to serve as his messenger-boy, bearing to you on his behalf the official greetings of the city of Asheville.

We are, gentlemen of the association, inexpressibly happy in having you with us. If you fully realized how much joy your presence brings to the doctors of Asheville, I believe that your traditional sense of charity would prompt you to meet annually in our delectable city. Ordinarily our doctors are rather solemn-minded gentlemen: like all members of their profession, they look out upon a life that is racked with pain, and what they see and what they must feel in the inevitable reaction is sculptured into their faces in lines of pathos and beggared sympathy. But now the faces of our Asheville doctors are positively beaming and there is about them such a carefree joviality, such an unwonted joviality, that I covet for them this convention as their annual recreation.

The doctor has never been exactly human to me. He has according to the period of my life been either less than human or more than human. In my childhood days he was a species of earthly edition of the devil. He was associated in my mind with coaty tongues that had

to be exposed, with vile medicines that had to be swallowed, with measles and mumps, and generally with that formidable array of childhood ailments.

And now that I can in a way claim the viewpoint of manhood's estate, I see considerably more of the divine in the doctor than in the ordinary mortal who struts and stares on this footstool. He represents to me a human endeavor that is so inextricably bound up with the real content of true religion and that so clearly foreshadows that finer day of the future that I can't help but think of him as being moulded out of a finer clay than the average human who plies his trade in this world.

If our lives were what some dentists profess to be, painless, we wouldn't need you doctors. But unfortunately there is no fact in our mortal existence so fixed, so unalterable, and withal so democratic as this simple, stark, grim fact of pain. Somewhere at all times some one is torn with agony. Pain is alike the great drag on human energy and the inspiration to sympathy. I don't think any person ever moved on this earth who understood the philosophy of pain like the Carpenter of Nazareth. How many of His miracles were performed in ministering to the ills of stricken humanity—as if He regarded this as the most appealing way of indicating His divinity and of showing the sincerity of His human interests. And then there emerges out of the New Testament the majestic figure of that tender-hearted man, Luke, the beloved physician, the most intensely human of all the saints.

According to the Biblical view of things most of us are wound up for three score years and ten. But the mechanism of the clock is so intricate and its dangers from without are so many and we are so inexpressibly ignorant and careless about it that ofttimes it runs down before we reach the age prescribed in the Biblical statute of limitations. When the machinery begins to grate and the hands to register wrong, we hie ourselves to you doctors to have our rusty and broken parts mended so that we can tick out the allotted time. And even when we reach the Scriptural limit, we want to keep going: and we always invoke the assistance and intelligence of you doctors.

Yes, the doctor is a mighty fine institution. You will recall how damning Jeremiah felt was the insinuation that there was no physician in Gilead. He presents himself to me as the studied, inveterate foe of pain, as a soldier who is eternally striving to push a little further out into the frontier the outposts of human longevity. And the inspiring part about him is that he works with little tangible knowledge of what he really achieves. A carpenter who erects a house or an engineer who

designs a bridge or an author who writes a book—they see their success in something definite and permanent, a monument to their own wisdom and enterprise, that mayhap will persist long after they have passed out of the world's knowing. But so many elements enter into the cure of the sick that it would be rather presumptuous for the doctor to take too much credit for what transpires. You remember what Benjamin Franklin once said: "God cures but doctors take the fees." Sometimes your bravest, wisest fights are lost when the patient slips his moorings and drifts out to sea in spite of any anchoring influence that you may exert.

Asheville is very proud, gentlemen of the association, to welcome you, because we welcome so unreservedly that great interest which you personify. We feel that the presence of three hundred doctors in our midst lifts the level of our intelligence and morality to an exasperatingly great degree. We trust that you will have a most delightful time and that you will carry away with you pleasant recollections of our little mountain community.

RESPONSE TO ADDRESS OF WELCOME.

Dr. Cyrus Thompson, Jacksonville, N. C.

Mr. Chairman, Ladies and Gentlemen:

There are a great many uncertainties in this life. The fact is it is mainly a bundle of uncertainties, and it is reasonably true to say that we do not get down to any genuine certainty in life until we get to the end of it, and there we find a dead certainty always.

My friend, the chairman, announced that we are very fortunate in that Dr. Picot, who is on the program for the response, being absent, I am here. I take it that the chairman passes in his community as a reputable man, a truthful man; and his friends hearing him make that statement would think that he was telling the truth. I myself do not believe a word of it. We are exceedingly unfortunate in that Dr. Picot at the last minute is found absent, and we are making the very best we can of an unfortunate situation, of which I had notice only as I was approaching this hall.

The circumstances, however, are not entirely new to me. I am a man-of-all-work at any time. I had this same duty to perform at

Raleigh when my friend Dr. Hill of Lexington flunked on the field, stayed away fearful, dodged conscription, and could not be found anywhere in the town. It is not his time, and I see him now. It is wonderful how they call on me to take the place of the other man, as if I had no place of my own. The multifarious adaptability of myself at last, I fear, will overwhelm me. But the chairman says we are fortunate. I fear I will come to think that a lie is a very gracious thing. Satan has many tools, they say; but a lie is a handle that fits them all. If I have to take everybody's place, I may come to think that I am a walking, loquacious lie. If I had had a good night's sleep last night I do not know but that I would stop to resent such imputation as that even though made by myself.

I am a genuine American—in that I am taken unaware, and utterly unprepared; but true American, if you would but give me time, I would swat the enemies of humanity in every land in this round globe of ours.

Of course it is exceedingly delightful for the members of the State Medical Society to meet in this high land of North Carolina. We met here eight years ago. Those of us that were fortunate enough to attend that meeting remember the cordiality of our reception and the magnificence of the entertainment which was given us on that occasion. We come here expecting nothing less than that now; and if this response to the address of welcome could have been deferred until the close of the session, which would seem to be the legitimate time for it, I know that there would be no good thing that we could say now that would have to be taken back then. We appreciate your hospitality, and admire your great city and your wonderful land.

Now, I come from the far east, a land very different from this. We do not have so many ups and downs in Onslow; we do not get upon the mountain tops of expectation nor do we fall down in the valleys of despair; we dwell not in the lowgrounds of sorrow; but in the Providence of God we run along on a plane of equilibrium, where the land is not much above the water and both are plentiful, where we trust everlastingly in the providence of God, the love of His Son, and the grace of the Blessed Trinity. These shall make it well for us, and take care of us everlastingly, when like men we stand up in the profession or as private citizens, and do our duty in peace or war as men are expected to do their duty on every occasion.

I do not know that I would love to live here, but I have been coming here for the last thirty years. I like to come here; it is a wonderfully good place to come to; and where I live in that blessed lowland is a mighty good place to go back to and stay. Yet we lowlanders are just as proud of your uplands as you yourselves are. There is not a man in North Carolina of reasonable intelligence that is not proud of Asheville, the cleanest city in North Carolina, nay, in the United States, perhaps; may we not say the cleanest city and best governed in this good world of ours? And it is here in this long, angular, sweet piece of territory known as North Carolina. We are proud of it: it is ours.

I might go ahead and talk on this way, but I told you we expected you to welcome us; you have welcomed us; we know we will enjoy our welcome, and we will go back with our opinion not higher than it was before, but with a sleek shoe-shine, as it were, just a little burnished up. Oh, I tell you it is a great thing for the lowlander, and it is a great thing for the good men of every section of the State to gather together in this highland and work for the good of all.

My friend has said nice things about medical men and the profession. You think they are constant. There is nothing in this world more inconstant than the medical profession, the science and art of medicine. Did you ever read Montaigne's essay wherein he lays it down that the man who does not have the doctor at all lives longer than the man that does have him? His argument is fallacious, of course. He says the system put up by one was knocked down by another, and it in turn knocked down by another, and so on through the history of medicine. So much is true. There are fads in medicine, we must confess, just as in dresses and Easter bonnets, and there is not much certainty until we get the dead certainty. But we are searching for a living certainly. There is one thing that can be said truthfully of us, we know that in medicine as in government there is in the providence of God "one far-off divine event toward which the whole creation moves"; and we are everlastingly in our domain of medicine searching and finding out little by little, as the waves of the sea cast up the shells and the sand on the shore, the everlasting truth for the good of humanity; and it does not make any difference in our endeavor if we stand aside the things of yesterday for the things of today; it does not make any difference if we set aside the things of today for the things of tomorrow. On we are marching, always working and finding out, and while we

are finding out, the man that is taken with a cruel disorder has no help but us. I tell you we are pretty proud of ourselves, pretty proud of our work, and we are glad that you are proud of us.

We know that you are glad to see us, we are glad to be with you, we cannot stay very long, we wish we could stay longer, and if you want us to, some time we will come back and see you again. In the meantime, come down and let's call doodles in the sand by the sea. It is a wonderfully pleasant occupation for those of youthful mind.

PRESIDENT'S ADDRESS.

Dr. Charles O'H. Laughinghouse.

Mr. Chairman, Members of the Medical Society of the State of North Carolina, Ladies and Gentlemen:

I was young in years when I first found myself in this wonderful country. Night was making ready to put day to sleep as I stepped from the railroad station. On the hotel veranda, my youthful eyes devoured the revelation; my soul was left a hungering for the picture to be put in words until John Charles McNeil painted with his poetic pen what a youth's eyes had engraved indelibly on the tablets of memory:

> Hills wrapped in gray, standing along the west,
> Clouds dimly lighted, gathering slowly;
> The star of peace at watch above the crest,
> Oh Holy! Holy! Holy!

Maturer years which hold a greater thirst for the miracles of God, brought me again to this, the country that demonstrates that an all-wise Providence holds a passion for the beautiful, akin to prodigality. During this visit I left a call on the register of my hotel for four o'clock in the morning, at which time I arose and walked out to witness Creation give to the world a new day. I saw the child "aborning." I saw the midwife, Nature, tear great clouds from the mountain peaks and sky, and use them as swaddling clothes. I saw the infant morning kick itself out of its nursery wraps, jump from mountain top to mountain top and race toward the Sun, who arose a-smiling to give it golden robes, light, warmth, and power for North Carolina service.

Again I came, and again, until this people, and this city impressed me with man's power, as did the mountains with Nature's grandeur. "Asheville's Riverside Cemetery" holds the mortal remains of men and women whose deeds, coupled with those who are today fighting for higher and better things, are making a model city abounding in wealth and opportunity; where the comforts of the rich have so softened their hearts that to be comfortable themselves they must share it with the working class; where architecture gives unmistakable evidence of humanitarian beauty and studied permanency; where parks, playgrounds, schools, hospitals, and churches go to prove that the city's proudest products are the children of men. A city clean and so wedded to sanitation that its very atmosphere is breeding idealism, a city whose banks hold

more than eight millions on deposit; a city which has given money so freely to herald her attractions, and to let the world know what she has and what North Carolina is, that she is admitted, above all others, to be the city that has done most to make our good State famous.

Our good State with nearly three million people exporting thirty millions of dollars in merchandise, importing only four millions; our State with nearly six thousand manufacturing plants, aggregating an investment of about $254,000,000; our State that from 1909 to 1914 led the United States in percentage of manufacturing increase, and yet eighty per cent of her people are country people; the State that is bringing into unmistakable realization the sociological hopes, aspirations, and determinations which have been so zealously nurtured by the medical profession.

The Deaf and Dumb in this good State have been provided for and are being educated along most modern lines.

The Blind Children have been given a new home and adequate fire protection. A law has been enacted making it compulsory for physicians and midwives to use remedies to prevent blindness in infants, and what is more, it is incorporated in the act that to neglect it establishes a liability to a damage suit.

The insane have been treated generously and humanely, not only in a financial way, but methods that make for their safety, comfort, and cure are being practiced as daily routine in our Asylums. We, as physicians, would do well to recommend, however, that the superintendents of the insane give more attention to the prevention of insanity.

The Caswell School for the Feeble Minded, a monument to the profession's influence and the State's foresight, is destined to do a great work. No institution has such sociological and economic potentialities. We should urge upon the governing bodies of this school, in conjunction with those of the Insane Asylums, to undertake to teach lawyers, judges, and legislators what feeble-mindedness is; what relationship it bears to crime, failure, pauperism, prostitution, and insanity. Our educational system should have a more profound working knowledge of this subject. Mental hygiene and the management of backward, precocious and incorrigible children is the most neglected problem in education today. In the face of our educational progress, in the face of its rapid systematization, there is yet waste—waste of time, waste of human power, waste of development; but waste's crown of waste in education today is the failure of educators to grasp the full meaning and management of the abnormal child. This child and its consequences is nothing more nor less than the future of humanity's horrors, and yet the State

has so far failed to lay an educational foundation looking to this child's welfare. It is high time that the physicians and educators of North Carolina were joining hands in the effort to intelligently cope with this most important problem. A law giving medical inspection to all school children is one of the acts of our last Legislature. Its enforcement is mandatory on the part of the child, parent, teacher, and State. We, as physicians, owe it to preventive medicine, sociology, education, and economics, to urge and teach the application of the Binet-Simon Intelligence tests to all abnormal children. Laggards in school, repeaters in school, incorrigibles, and the like, are just as much entitled to examinations of their minds as to examinations of their eyes, ears, throats, blood and feces. If we are really determined to educate all the children of all the people, we will not rest until the abnormal child is given that which is his due.

The Prison Reform Act passed by our recent Legislature, makes the Board of Health sponsor for the hygienic and sanitary conditions of all prison institutions belonging to the State and counties—a long step forward in preventive medicine and sociology, one that means much to health and economics and morals. That all criminals are not prisoners and that all prisoners are not criminals is equally true. We can do humanity a service to develop a public sentiment that will give prisoners a chance. The environment of prison life needs to be changed in North Carolina. Good food, clean clothes, clean beds, hygienic surroundings, uplifting recreations and amusements are helpful, wholesome, civilizing, and will react creditably alike on the prisoners and their governors.

A Bureau of Epidemiology has been created whereby quarantine can be standardized. The execution of this law is a responsibility placed on our Board of Health. It is every doctor's duty to give whole-hearted support to this law. It cannot fail if the doctors respect it, nor can it succeed if they neglect it. Let me urge each County Society, as well as each physician in the State, to give this subject careful consideration and support.

The Physicians of North Carolina Can Assist in the Execution of the Act Providing for Coöperative Rural Sanitation. This act conduces to the betterment of rural life, and as eighty per cent of our people are rural, it behooves us to encourage all things that add to the comfort and attractiveness of country life.

The Act Carrying With it an Appropriation to Aid Villages and Country Homes in the Installation of Electric Lights and Waterworks is a thing we "long have sought and mourned because we found it not."

Tell the people about it; help them to avail themselves of it. Crime and thriftlessness thrive in darkness. Running water is the very channel of sanitation.

Doctor Rankin's Post-Graduate Plan, the plan that puts post-graduate work down to your very doors, has been taken as one of the extension courses by the University of the State. It has been tried out and found to be practical, economical, instructive. Give it your careful consideration; take advantage of it whenever you can.

The Attitude of the State to the Problem of Tuberculosis is evidenced by the construction of a Tuberculosis Sanatorium; by the appropriations of the General Assembly for its permanent improvement and maintenance; by appropriations for its extension work; by recent laws which are nothing more nor less than enabling acts permitting counties to build sanatoria; by the various local Tuberculosis Societies in the State; by the intelligent coöperation, study, and influence of the Women's Clubs; by the sale of Red Cross Seals; by private donations to the work; by the coöperation of the Metropolitan Life Insurance Company, and by the probable fact that the Bell Telephone Company is soon to put up a building at Sanatorium to be used in coöperation with the State's Sanatorium. The purpose of the State's Bureau of Tuberculosis is prevention. Prevention cannot come until the doctors as a whole become habitually proficient in the routine practice of diagnosing tuberculosis in its incipiency. They must come to the conviction that a diagnosis of tuberculosis should be made before tubercle bacilli are found in the sputum; that a hemorrhage of the lungs means tuberculosis without exception; that a persistent subnormal temperature in the morning and a rise of temperature in the afternoon usually means tuberculosis; that a cough lasting three weeks suggests tuberculosis. Every case of tuberculosis that gets beyond the incipient stage is a reflection on the science of medicine. We can catch these cases in their incipiency, and we must, if we do our part in the fight against this dread disease.

The Poorhouses Are Crying Out to Medicine and to Sociology for Help. In many counties in the State they are nothing more nor less than Gehennas of civilization. A survey of these places in the first Congressional District, although it had $50,000 invested in poorhouse properties, although it spent $28,000 on maintenance during 1915, not a poorhouse in the district possessed a thought for treatment of disease, accommodations for the sick, or consideration for the necessary comforts of life.

AN INDIVIDUAL, COMPARATIVE AND COMPOSITE STUDY OF COUNTY POOR-HOUSES IN THE FIRST CONGRESSIONAL DISTRICT OF NORTH CAROLINA, MADE 1915.

Counties	Population, 1910 Census	Property Value	Maintenance	White Males	White Females	Colored Males	Colored Females	Total	Able to Read	Aged	Diseased	Born in Home	Epileptic	Tuberculosis	Feeble-minded	Service	Per Cent Each County Pays
Beaufort	30,877	$5,500	$2,700	----	8	7	DK	15	DK	15	DK	----	DK	DK	DK	Supt.	15.9
Camden	5,646	2,000	450	----	----	----	----	----	----	----	----	----	----	----	----	Supt.	2.9
Chowan	11,303	2,500	1,590	----	1	1	3	5	1	5	----	----	----	----	1	Supt.	5.8
Currituck	7,693	------	2,500	DK	DK	DK	DK	26	DK	DK	DK	----	DK	DK	DK	------	3.9
Dare	4,841	550	935	DK	DK	DK	DK	15	DK	DK	DK	----	DK	DK	DK	------	2.5
Gates	10,455	2,000	1,046	----	2	3	5	10	----	2	10	1	----	----	8	Supt.	5.4
Hertford	15,436	5,500	2,435	----	1	3	2	6	1	5	6	----	1	----	1	Supt.	7.9
Hyde	8,840	2,500	1,215	2	1	2	----	5	1	----	----	----	----	----	5	Supt.	4.5
Martin	17,797	5,300	2,100	1	3	3	2	9	----	3	9	----	----	----	5	Supt.	9.2
Pasquotank	16,693	5,300	2,174	5	3	5	4	17	6	6	3	----	2	----	6	Supt.	8.6
Perquimans	11,054	5,325	2,443	1	----	2	4	7	----	3	----	----	1	----	3	Supt	5.7
Pitt	36,340	8,750	6,640	3	6	2	6	17	----	10	7	3	3	--	6	Supt.	18.8
Tyrrell	5,219	750	600	1	1	----	----	2	----	1	1	----	----	1	----	Supt.	2.7
Washington	11,062	2,000	1,200	2	----	2	1	5	2	----	2	----	----	----	2	Supt.	5.7
Totals	193,250	47,981	28,028	15	26	30	27	139	11	50	33	4	7	1	33	------	99.0

If these counties would group themselves into a community, build one home, divide the cost according to population, maintain farms, workshops, intelligent and humane management, the problem would be solved and at less money than is now wasted. The almshouse in many counties is a pest hole of poverty, a hiding place for hopelessness, a slum for senility, an anathema against economics, a prayer for proficiency, and a crying charge of cruelty against a twentieth century civilization. They are places where:

Hope goes by and peace goes by
And will not enter in;
Youth goes by and health goes by,
And love that is their kin.

Those within the house shed tears
Upon their bitter bread;
Some are old, some are mad,
And some are sick abed.

Gray death sees the wretched house,
And even he goes by.
They have never lived, he says,
So they can wait to die.

The medical profession, if it wills it, can convert these places into Community Homes. It can arrange counties into groups and fix it so that one county in a group can care for all the paupers. A law is on the statute books providing for the plan. See Senate Bill 1377, dated March 8, 1915. It only needs the head and heart of the State's profession to push it through.

The Question of Statewide Examining Boards is Agitating the Minds of Thoughtful Men Today. During the past few decades numerous *schools, systems, sciences, philosophies,* and the like have arisen for the treatment of disease. They are coming to the State from time to time asking leave to ply their trade. They do this of course so that the State will put the stamp of genuineness upon their calling, and also label them noncontraband. It is from these cults that the cry for Medical Freedom is heard constantly ringing in our ears. We do not hear it for plumbing freedom, or freedom of any other legally regulated occupation. No man is prohibited from working as a plumber, he is simply required to show his knowledge of and familiarity with the general principles and practice of that trade. Anybody will admit the wisdom and public policy of regulating the plumbing and other trades that touch property values, but when it comes to protecting human beings from incompetent meddlers we hear a deal about the sacredness of personal liberty. Yet no State pretends to dictate into whose hands the sick man shall commit himself. Nor does the State attempt to specify how the patient shall be ministered unto. It is but right and proper that no cult is required to diagnose or treat disease in accordance with the laws laid down by any other cult, but it should be required of all who minister to the sick that they shall possess an adequate knowledge of the body, its structure, functions, and pathology. The profession should begin to give this question serious thought, not for its own sake so much as for the public good. Some states are consolidating the various boards of Examiners, Commissioners, Bureaus, and Special Committees, which have from time to time been created by legislative power. For example, Illinois has recently passed a law creating a Department of Registration and Education which takes over the licensing of all professions, occupations and trades coming under State control. The principle on which the examining and licensing of physicians is based is essentially that the State regulation of the practice of medicine is an educational and not a sectarian function. The responsibility of the examining and licensing of physicians as well as all others who desire to treat the sick for compensation is relegated to the people who execute their responsibilities through the educational

machinery of the State. Educational Examiners, under the direction of the Department of Education, prepare questions on subjects necessary to the knowledge of any school of healing. This does away with the necessity of special examining boards, and thereby recognizes the principle that all persons desiring the same rights and privileges must conform to the same educational standard. I would recommend that this Society give this question serious thought. The Boards of Medical Examiners, like Boards of Plumbing Examiners, are for the protection of the people and not for the protection of the profession or calling to which they are the gateway.

Nearly one hundred years ago a wise man wrote:

> We are living, we are dwelling,
> In a grand and awful time;
> In an age on ages telling,
> To be living is sublime.

When this was written, nothing was known of the telegraph, the wireless or the telephone. Regions of the human body that are now the abiding place of the surgeon had written over them, "Abandon hope all ye who enter here." Plague, pestilence and famine decimated man. There were few churches, fewer schools, and not a public library in the United States. All the travel between New York and Boston was accommodated by two stage coaches. Twenty days was required for a letter to go from New York to Charleston. Imprisonment for debt was a common practice. A North Carolinian anticipating a journey to New York made his will, bade good-bye to all his friends, never expecting to see them again. Persons who criticised the minister or his sermon were fined. Our national childhood toyed with the Thirteen States. The march of man through the nineteenth century has waked magnificent ideas; humanitarian possibilities and miraculous discoveries such as the world never saw have come to be necessities. The world of our fathers is not our world. Out of the ashes of the past a new present is continuously being born. Standing on the threshold of tomorrow, we are faced by new problems that we must solve, new conditions that we must adapt ourselves to, new crises that we must meet.

The practice of medicine is keeping pace with the world's progress. Fulton's reduction of the ocean to a ferry; the annihilation of time and space by Morse, so far as conversation is concerned; the placing of the world on one's desk by Alexander Graham Bell and compelling it to listen; the practical operation of railroads and motor cars, making

every man our neighbor; the probability that ere long we will leave the crowded highways and go coursing through the air on our usual rounds, is all very wonderful, but no less so than are the miracles daily wrought in the conquest of disease. The history of the art of medicine goes back almost to "where the memory of man runneth not," but the history of the science of medicine being less than fifty years old, will be written largely from diaries of the medical celebrities of today and of the future. The writings of the physiologist and chemist of a few years ago are referred to only because of their historical interest. The birth of the surgeon who governed himself by the lessons of Lord Lister in 1875 was the death of the surgeon who refused to believe in germs. The Tubercle Baccillus was unknown in the seventies. Wasserman perfected his test for syphilis only ten years ago. The physiology of the ductless glands and their influence on pathology are all today's discoveries. The diagnosis of disease is becoming more and more a matter of physical auditing which records the assets and liabilities of the different parts of the human body.

The class "A" schools are clamoring for more time in which to train medical men, while their requirements as to preliminary education along with the four-years course make it already incumbent upon the student to give from eight to ten years of his life to the procuring of a preparation to practice. What does all this mean? If it means anything, it means that looking at the tongue, counting the pulse, palpating the abdomen, listening at the chest through a vest and shirt and venturing a diagnosis on the information gained thereby is a thing of the past. Scientific medicine possesses scientific means by which to diagnose and treat disease. That the profession realizes it, goes without saying. The people realize it, too; they realize what it means to a community not to have the equipment for the conquest of disease. What are we going to do about it, we in North Carolina, with a clientele eighty-two per cent rural?

Social Insurance. If the medical profession in this good State were turned over to an efficiency engineer, with the intention of placing it on the most productive basis from every viewpoint, there is no doubt but that in the preliminary analysis the following facts would have to be reckoned with. First, the State has a population almost entirely American, not hyphenated American, but American, eighty-two per cent of which is rural. Of this people 70,000 are sick every day in the year. Its wage earners lose about nine days a year each from sickness. These facts naturally bring up the question of *Health Insurance,* a scheme which has added greatly to the longevity of Prussia's

people. Germany has it, so has Great Britain, Austria-Hungary, Norway, Servia, Russia, Rumania, Holland, and other countries. The idea originated in Germany in 1883. England adopted it in 1911. The agitation for its adoption in the United States was begun by the American Association for Labor Legislation four years ago. Irving Fisher, professor of Political Economy at Yale, states that "Germany's wonderful progress, her comparative freedom from poverty, her reduction in death rate, her advancement in hygiene, and the physical preparedness of her soldiery, are presumably due in considerable measures to Health Insurance." The American Association for Labor Legislation now claims for it the support of the State Medical Society of New York, Pennsylvania, and Wisconsin. A commission for California reports favorably on the question. Governor McCall of Massachusetts appointed a commission to study it, which commission unanimously approved the principle and recommended the compulsory form of Health Insurance—suggesting that it be supported two-fifths by the employer, two-fifths by the laborer, and one-fifth by the State. Since the Massachusetts report was delivered the American Federation of Labor has entered a plea for the scientific investigation of the whole subject by a National Commission of Experts. Legal enactments that meet the requirements of other states may not satisfy the wants of North Carolina, but it goes without saying that the question is deserving of this Society's serious attention. To appoint a committee for this purpose impresses me as the timely thing to do.

Group Practice. The practice of our profession is emerging from the stage where the physician peddles his advice from house to house. The truth is the physician himself has, through the efforts of himself, developed a calling too big for himself. He cannot give the best the profession has unless he can arrange with confreres to do team work. The Internist has all that he can do and more to become proficient in his particular specialty; the same can be said of the Surgeon, the Röntgenologist, the Oculist, the Pathologist. Even the specialties are rapidly becoming subdivided as evidenced by the Gynecologist, the Genito-Urinary Surgeon, the Brain Surgeon, the Abdominal Surgeon, the Neurologist, and the like. We are all keenly aware that a considerable portion of our patients present problems that we must solve in large part by guesswork, that is, if we are denied an X-Ray plate, a Wassermann test, a blood, feces, stomach or urinary analysis. That medicine has progressed to the point where diagnosis cannot be made in many cases except through the group method goes without saying.

Therefore it behooves the profession not only in cities, but in any place where two or more physicians can gather together to do so with an eye view of giving the proficient service that can be had today and which any people have the right to expect and demand.

Hospitals. The third fact is, that social insurance, group practice, satisfactory diagnosis, operative surgery, and the intelligent treatment of disease cannot be accomplished without the aid of hospitals. The X-Ray examinations, the chemical and physiological tests, the examination by experts in order to make a diagnosis, is no more important than the study of the improvement or aggravation of symptoms at different times of the day under the influence of different diets, treatments, nursing, and so on. This study demands the advantages found in a hospital, and nowhere else can they be had except through prohibitive expense. That good surgery has been and can be done in private homes, is admitted, but the discomfort, danger, and expense incident to it makes it out of the question; besides the personal nerve wear to the surgeon who attempts it amounts almost if not actually to a slow and painful suicide. "The most significant fact in our present life," says R. D. W. Connor in "An interpretation of the history of North Carolina during the year 1916," "is our increasing recognition of a fundamental change in our conceptions of the purposes, the functions and the nature of a modern state. The ideal state of our forefathers was one that touched the daily lives of its people at as few points as possible. The doctrine of *lassez faire* was dear to their hearts. For them the maxim that the best government is that which governs least was a political truth that admitted of no dispute. They would have the State do nothing for the individual which the individual could not do for himself. All this has been changed. Today we recognize the interests of the state and the interests of its people as identical; and our maxim seems to be that the best government is that which best serves the greatest number of the common interests of its people." The ideal modern state, therefore, promotes education, protects its public health, cares for the unfortunate, constructs highways, assures the purity of the people's food, inspects the farmer's fertilizer, demonstrates improved methods of agriculture, teaches lessons in cooking and housekeeping, and does a thousand and one other things that would have shocked the political ideals of our grandfathers. Acting on this principle which forced recognition of the people's need, the State of North Carolina passed an act in 1913 enabling counties to vote bond issues for county hospitals. Dr. Fletcher, your president for 1916, *pari passu* with an eloquent plea for community hospitals, brought this law to

your attention. Your committee appointed to pass on Dr. Fletcher's address emphasized the need of community hospitals in their recommendations. Your Health Officers Association indorsed the law and emphasized the need of community hospitals from the standpoint of public health. Your last Legislature amended the law so as to make it an enabling act for towns and townships as well as counties. The law gives equal rights to all and special privileges to none. It does not conflict with any men or set of men who desire to construct or operate private hospitals; on the contrary, it gives the owner of private hospitals the same privileges that are accorded any other physicians in the community. The law deserves the study, the thought and indorsement of every physician in the State. It is the only way to give a hospital chance to all those licensed to treat disease and the only way to give all the diseases of all the people hospital treatment.

Secretary and Treasurer's Office Should be Merged. I cannot go further with this address without calling your attention to the fact that because of the growth of the Society along with the increase of its undertakings, the question of finance needs to be seriously considered. The multiplicity of stenographers because of our section form of program, the increase in the cost of getting out the transactions because of the rise in the price of paper, printing and labor, have greatly added to our expense. To merge the office of Secretary and Treasurer into one office would save money and simplify the work of the Society very much; therefore, in my humble judgment, this merger should be made.

There is no Connected Record of Medicine in North Carolina. Is it not time to perfect one? History is the headlight by which we follow rightly the road of civilization as it wends its way through the centuries of the past. It has chronicled correctly the struggles, achievements, and potent factors that go to make the state. It sings the songs, locates the legends, and finds the facts of pioneer days. It gives the strides in politics and the men and things that made them. It relates the record of legislation and of law, and shows that they have been always bound in the bondage of precedent, progressing only through the power of public opinion, which in its might, fought for and forced civilization's change. It sings of educational advancement which in modern times is made a mighty chorus by the lives of McIver, Aycock, and Jarvis, along with the diaries of Joyner and the individual members of his glorious army. It indexes the evolution of religion from the days of the Puritans up to the hour when the Church accepted the challenge to make men fit for Heaven and earth fit for men. It shows the press from year to year pushing public opinion forward toward

higher and finer things; teaching truth, crystallizing character, stimulating strength, making manhood, inventing industry, and persistently promulgating each and every idea that makes for a perfect civilization. The efforts, accomplishments and ideals tell the story of our factories and farms, our municipalities and our men, our morals and our might. Has medicine lent no influence to all this? Have the accomplishments of our profession been so nearly nil that they are not worth a place on history's page? Will not some medical man undertake as a labor of love to perfect a history of North Carolina medicine? Marshall Delancey Haywood, in the *North Carolina Booklet*, has published most interesting data bearing on this subject. Dr. John Wesley Long has taken the tangled threads of record and has woven them into a most accurate, instructive, and delightful address illustrated by lantern slides and photographs of incidents and men which can be made the beginning of medicine's historic story. His records date from 1799 to 1805 and from 1849 to 1861. If any physician in North Carolina can supply the missing links from 1805 to 1849, let me urge him to do so, and in addition let me suggest that a historical commission be appointed at this meeting with instructions to procure all available data relating to the profession's past.

Medical Preparedness. Lastly, in the name of patriotism and of loyalty, let me remind you that even though we are unanimous in the conviction that the Government of this country has used every means consistent with wisdom, patience, humanitarianism, and self-respect to avoid conflict with other belligerent nations, even though we have shared in the national sentiment and the national prayer, that ways and means might be devised by which peace could be vouchsafed our people, we have in spite of ourselves nevertheless been carried by an undertow, not of our making, into the turbulent waters of war. As a profession we are driven to the serious and immediate consideration of our preparedness. The council of national defense, realizing this, has appointed a committee of American physicians who are bending their energies to the perfection of an organization that will consummate ways and means by which and through which medicine can adequately meet the important responsibilities that the times demand. The National Committee has appointed State Committees throughout the length and breadth of our land. For North Carolina this committee consists of Drs. J. W. Long, H. A. Royster, C. O'H. Laughinghouse, Benj. K. Hays, M. H. Biggs, M. H. Fletcher, David T. Tayloe, R. L. Gibbon, J. E. Stokes, J. M. Parrott, J. F. Highsmith, E. J. Wood, H. F. Long, S. H. Lyle, C. W. Banner—all of whom are members of the

Medical Society of the State of North Carolina. This committee needs to select from every county in the State five or more physicians who are ready and willing to procure from their respective counties a definite number of medical men who will join the medical reserve corps, and who will organize into a County Auxiliary Medical Defense Committee. The hospitals of the State have been supplied with inventory forms, either by the Committee of American Physicians for Medical Preparedness or by the Council of National Defense. Let me urge all hospitals which have not thus far done so, to fill out the inventory forms and return them in accordance with the instructions printed upon the forms themselves. Every member of this Society should give the State and the county auxiliary medical defense committees whole-hearted coöperation, for upon individual assistance depends that perfection of organization and service necessary to the safety of our country's present and future.

The ability of medicine today to conserve life and limb, prevent disease, death, and pain, places greater obligations on the profession than ever before. For example, in 1898 a period of eight months, there were 20,926 cases of typhoid fever with 2,198 deaths, among a total of 147,795 regular and volunteer troops. In five and one-half months of 1916, there were only 25 cases of typhoid fever with no deaths among a total of 170,000 regular troops. Among the regulars who had been vaccinated against typhoid fever, within the past three years not a single one developed the disease. In 1898 there were several hundred deaths from dysentery; in 1916 there were only eight. Just across the line in Mexico, however, smallpox raged, as did typhus, typhoid, yellow fever, malaria, and other communicable diseases. Where sanitary measures were enforced disease was prevented. Mosquito netting used at night kept off yellow fever and malaria; washtubs, soap, cleanliness, prevention of flies, filtered drinking water, the burial of excreta, eliminated infectious and contagious disease, while aseptic surgery hastened recovery and loomed large in the prevention of cripples and death. We are placed where we must give this subject the attention that is its due. We must consecrate ourselves to it, no matter what the sacrifices may be. In the great scheme of National defense, we must keep the fair name of our Mistress Medicine free from the stain of shortage or inefficiency to mankind. We must not permit preventable diseases and injuries incident to war to decimate men or return them to civil life broken in body, broken in health, or broken in strength.

From the moment your kind sufferance elevated me to the high office of President of this Society I have been filled with appreciation and a realization of my responsibility to you, which has kept before me

ideals—ideals of perfection for the profession and its practices in the State; ideals to convince North Carolinions that North Carolina medicine can adequately meet North Carolina's needs; ideals to standardize the State's hospitals and to bring their proficiency to the attention of the profession in the State; ideals to encourage the proficient practice of modern medicine, modern surgery, and all branches of healing appertaining to both; ideals that will give medical men a clearcut vision of duty to themselves and mankind. I am looking with confidence to the consummation of these ideals. So in conclusion, let me express the conviction that if we earnestly endeavor to give our part to the leaven which cements the amalgamation of all interests that make the great composite universal force for good, "our dear old State will assume her rightful place in the march of civilization, and from the blue of the mountains to the blue of the sea, there will spring up a hardier, holier race, not unlike the giants that walked the earth when the sons of God mated with the daughters of men."

Dr. J. Howell Way, Waynesville: The lofty conceptions, the fine ideals, the elegant diction, the intense vein of practical common sense, the profound knowledge manifest of things and men medical in our past and present, the keen, clearcut vision of the future, blending in harmonious whole, indelibly mark the address to which we have listened with such rapt attention as a masterpiece indeed among the many fine Presidents' addresses delivered before this body. Without attempting to further express my own appreciation and that, I am sure, of the assembled members of the Society, I desire to make the customary motion that the President's address, with its many valuable suggestions, be referred to a committee of three to be reported on during this present session.

Motion seconded and carried.

The following were appointed a committee on the President's Address: Dr. J. Howell Way, Dr. J. W. Long, and Dr. John G. Blount.

Dr. J. W. Long, Greensboro: While the President's address automatically goes to the Publication Committee, and while in the very nature of things a discussion of the President's address is out of order, in view of the fact that this address fairly scintillates with the latest scientific and humanitarian truths, I move that the Society set the seal of its approval upon his utterances by a rising vote.

Motion seconded and carried.

REPORT OF COMMITTEE ON ARRANGEMENTS.

April 16. Take carriage at Battery Park Hotel for Biltmore Dairy, 11 a. m. Luncheon at dairy. Return to City Hall at 2:30 p. m.

April 17. Tea at Battery Park Hotel, in honor of visiting ladies, 5 p. m. The Dansant. Reception at Mission Hospital from 3 to 4; Biltmore Hospital, 4 to 5; Meriwether Hospital, 5 to 6 p. m. Reception and dance in ball-room of hotel, 9:30 p. m.

April 18. Carriages leave hotel for drive through Biltmore Estate, 2:30 p. m. Refreshments served at the dairy. Ladies invited.

Clinic at Mission Hospital by Dr. Briggs, 8 a. m.. Wednesday. Laryngo-suspension; Sclero-trephine for glaucoma; Briggs link operation for strabismus.

Dr. F. Webb Griffith will hold a surgical clinic at the Meriwether Hospital at 8 a. m. Wednesday. Two operations, one appendectomy and the other hysterectomy.

Author's Strabismus operation, Demonstration of suspension, Laryngoscopy, 8 a. m., at Mission Hospital.

Dr. J. Howell Way, Waynesville, called attention to the fact that at this hour in the near-by sister city of Spartanburg, S. C., the opening exercises of the annual session of the South Carolina State Medical Association were being held, and moved the Society be instructed to send fraternal greetings wishing a pleasant session and inviting the Association to adjourn early and come to Asheville for the final day's session.

SCIENTIFIC PAPERS

SECTION ON PRACTICE OF MEDICINE.

SECTION ON SURGERY.

SECTION ON PUBLIC HEALTH AND EDUCATION.

SECTION ON GYNECOLOGY.

SECTION ON EYE, EAR, NOSE AND THROAT.

SECTION ON PEDIATRICS.

SECTION ON MATERIA MEDICA AND THERAPEUTICS.

SECTION ON OBSTETRICS.

SECTION ON ANATOMY.

PRACTICE OF MEDICINE

DISEASES OF THE CONUS TERMINALIS AND THE CAUDA EQUINA.

R. F. Leinbach, M.D., Charlotte, N. C.

Disease of the Conus Terminalis and the Cauda Equina occurring as an isolated lesion, and not as a part of the disseminated or system diseases of the spinal cord, is perhaps a condition not frequently encountered, yet as I have within the past six months seen two cases, one of years standing, and one of recent development it seems worth while to call attention to the symptom complex which it presents. Irreparable damage is all too quickly brought about before the proper therapeutic procedure can be instituted if there is any delay in diagnosis, leaving the individual if he survives a distressing picture of urinary and fecal incontinence combined with a mind of normal vigor, and a body perhaps otherwise but slightly impaired. The early symptoms, while clearcut, are yet of such a character as to focus attention of the attending physician on the affected viscera, especially if he has not encountered the condition before.

We may recall here that the caudal extremity of the spinal cord terminates behind the body of the second lumbar vertebra in a cone-like formation of gray and white matter called the Conus Terminalis, the Conus Medullaris, or briefly the Conus. From the apex of the Conus a filiform strand of nervous tissue extends downward for some distance as the Filum Terminale. The Conus proper embraces the third, fourth, and fifth sacral segments, and both coccygeal segments. Its upper boundary is not sharply marked off to gross inspection, but on histological examination there are sufficiently definite structural variations to delimit it from the segments above. These variations are, roughly speaking, an excessive development of gray matter, a relative change in the position of the large ganglion cells, disappearance of the posterior gray commissure and the lateral pyramidal tracts. Lying within the spinal canal, the conus is so thickly surrounded by large bundles of downward coursing nerve roots that it is completely concealed from view on opening the dural sac. These large bundles of nerve roots together constitute the Cauda Equina. They arise from the upper

and lower sacral segments and from the lumbar segments, and course downward within the dural sac for a distance of five to six and one-half inches (10 to 14 cm.) before piercing the membranes to unite outside, anterior and posterior roots respectively, to form the peripheral nerve. It is in part due to this anatomical arrangement that an isolated lesion of this portion of the Central Nervous System presents its characteristic complex.

The symptoms are perhaps best illustrated by the following complaints presented by a married woman of 26, seen in November, 1916. It will be seen that while in the beginning a pure conus syndrome is featured, the disease process manifested a tendency to involve also the upper sacral segments with its later progress. Two months prior to admission this patient began to have severe radiating pains in her pelvis and thighs extending through the sacrum and coccyx, around hips and down thighs to knees. She began to be very constipated so that it became necessary to resort to frequent purgatives to secure daily action. At the same time came frequency and urgency of urination. There was at this time no loss of vesical control. In the course of a few weeks she suffered most severely with pains of a neuralgic character in pelvis and thighs. From frequency and urgency of urination she progressed to difficulty in exercising full control over her bladder, and finally to complete incontinence of urine with constant dribbling. At the same time her bowels became more and more difficult to move. The rectal stimulus to defecation was lost and her feces would accumulate and inspissate to such an extent that manual aid was several times necessary to clear the rectum.

Physical examination of the patient at this time revealed the characteristic sensory-motor complex of disease limited to the lowermost segments of the cord and Cauda. Sensation was lost over a saddle-shaped area extending outward from the anus to the middle of each buttock, upward to the end of the gluteal groove, forward over the perineum and external genitalia to the anterior commissure of the vulva, and downward on the posterior aspect of the thighs to about the middle. Patellar and Achilles tendon reflexes were absent on the right, diminished on the left. Plantar reflexes present on both sides. No Babinski, or Oppenheim and no clonus. Anal reflex abolished. There was tenderness over the Perineal nerve in the Popliteal space on both sides some weakness and tenderness in the calf muscles. Motor phenomena were evident in complete paralysis of the Levator Ani, Sphincter Ani, Sphincter Vaginae, and Sphincter Vesicae. Rectal ampullae was so ballooned out that its walls were almost out of reach of the

examining finger. Lumbar puncture on November 26th brought a clear white fluid not under pressure which coagulated spontaneously within forty-five minutes solidly so the tube could be laid on side without spilling, and which showed a cell count of 244 and a strongly plus Wassermann. While there had been no suspicion of syphilis in the family history, yet as the blood Wassermann taken four days later showed a four plus reaction there can be no doubt that the pathology in this case was a meningo-myelitis of syphilitic nature beginning in the Cauda with the formation of a cul-de-sac in the lower dural canal by agglutination of the membranes to the cord.

The symptom-complex therefore of pure conal disease, briefly stated, consists of paralysis of the bladder and rectum, sensory losses over an area perhaps slightly larger than an ordinary saucer centering at the anus, and loss of the anal reflex, combined with characteristic radicular pains in the zones affected. Unless the disease extends upward of the third sacral segment there is no impairment of locomotion and the motor symptoms are confined to paralysis of the four perineal muscles before mentioned. It is this fact which may lead to the exact pathology being overlooked as we are prone to look for symptoms in the lower extremities in spinal disease. It is a striking fact that the patient with a pure conus affection may not be subjectively aware of the paralysis of the rectum in the early stages, nor of the loss of sensation in the peri-anal region. If the patient has a tendency to constipation, there follows first a ballooning out of the rectum with pronounced stasis in the rectum and sigmoid, followed by inspissation of the fecal contents so that the condition represents itself to the patient subjectively as an inability to obtain a bowel movement rather than an inability to control expulsion. The factor of incontinence may only be brought out when the patient attempts to take an enema. The sensory losses are but vaguely realized as in the case cited. Only on close questioning after the diagnosis had been made was it stated by this patient that she had noticed a peculiar leathery feeling in her perineum and buttocks when sitting down. In unintelligent patients, or in those who have not the analytical turn of mind it is even possible that the loss of vesical control may not be clearly brought out. If the patient be a woman who has borne children, the attention of the attending physician may be diverted for a time from this relative loss of bladder control, as this symptom is not infrequently encountered. In one series recently reported fifteen per cent of the women examined were shown to have this condition in more or less degree without obvious disease.

Again, as has been pointed out by Collins, the characteristic radiating root pains which most generally mark the first stages of intra-spinal disease may be largely absent, or the pain may be of an atypical form and referred so pointedly to the pelvic viscera as to lead to diagnosis of actual visceral disease.

As to the etiology of caudal disease, it may be said that any type of pathology affecting the spinal canal elsewhere may be found in the region of the Conus. Most frequent, of course, is trauma in the production of fracture-dislocations with compression of the cord. In traumatic conditions an early diagnosis is practically always made. It is in the non-traumatic group that greater alertness in diagnosis is demanded. Syphilitic meningo-myelitis, by no means an uncommon type of pathology, is most commonly found in the upper zones of the cord. The various intra-spinal tumors form an important group in the etiology of caudal disease. Glioma, fibroma, endothelioma, sarcoma, both single and multiple, psammoma, dermoid cysts and others have been reported. Varix of the posterior veins of the cord, extra-dural abscess, tuberculosis of the vertebrae, and of the cord itself have given rise to the symptom-complex. In addition to these, Kennedy and Elsberg in 1914 called attention to a form of caudal disease in which the only lesion discoverable at operation was in intra-dural root neuritis which they assumed to have been due to some unknown intoxication or focus of infection. They report five cases of this type.

Treatment to be effective requires early recognition of the nature of the symptoms as degeneration of the nerves involved sets in early, leaving the patient perhaps with permanent loss of control of bladder and rectum, so that even if the disease is later eradicated and his general health restored he is unfitted for active participation in the affairs of life. Lumbar puncture must be resorted to at the earliest possible moment to determine the possible syphilitic nature of the process, the presence of pleocytosis, either lymphocytic or neutrophilic, or for the cord compression syndrome of increased proteins with xanthochromia. If syphilitic intensive treatment is called for intra-spinal injections of salvarsan or salvarsanized serum, combined with intravenous medication, and mixed treatment may be successful in arresting the process as occurred in the case reported, though it is powerless to correct paralysis from nerve degeneration which has already occurred. If not completely lost some return of function may be hoped for. If the case is not definitely syphilitic laminectomy should probably be done in every case by a competent surgeon, unless it can be made sure

that the symptoms are due to intra-spinal metastasis of a malignant neoplasm. The operation is perhaps difficult, but the mortality in good hands is low.

In conclusion it should be said that a regional classification of disease of the spinal cord is of course serviceable only within certain limits, and that a consideration of Caudal Disease as a separate entity has merely a clinical and not an etiological foundation. As has been stated, while disease limited to the Cauda is perhaps not infrequently encountered it is clear that a competent neurological examination is often a sine-qua-non in the treatment of genito-urinary disorders.

Dr. J. Howell Way, Waynesville: Before the discussions begin I note there are present three distinguished physicians, whom I am advised are guests of the Association by invitation—Dr. Tom A. Williams of Washington, Dr. L. W. Hill of Boston, and Dr. Jesse R. Gerstley of Chicago. I move the usual courtesies of the floor be extended to these gentlemen and other visiting guests as well.

Dr. C. O'H. Laughinghouse: Not only the usual courtesies, but the welcome of the Society will be extended the gentlemen present as well as other visiting gentlemen.

Let me say, this being a symposium we will not discuss Dr. Leinbach's paper until the others have been read.

MORBID SENSATIONS OF UNPLEASANT OR INCOMMODING NATURE, THEIR SIGNIFICANCE AS HARBINGERS OF GRAVE DISEASE.

By Tom A. Williams, M.D., C.M., Edin., Washington, D. C.

Lecturer on Nervous and Mental Diseases, Howard Univ., Washington, D. C. Corres. Mem. Soc. Neurol. et Soc. Psychol. Paris, etc., Corres. Mem. Nat. Academy of Med. of Rio de Janeiro. Neurologist to Freedmen's Hospital.

Whether persistent or intermittent, a patient's unusual sensations are too often lightly regarded by the medical attendant. It is the careless fashion to attribute them to neurasthenia or hysterical imagination and to regard them lightly.

A little reflexion upon the cases subjoined should show the unwisdom of a disregardful attitude towards any complaint of a patient, unless that person has been *properly* diagnosticated as a nosophebic or a malingerer. Indeed, such sensations should be looked upon as the guideposts indicating the need for a thorough search for the pathological process without which they would not occur.

FLUSHINGS AND PERSPIRATION.

A woman was sent from New Mexico, by her physician because of loss of social adaptability, the meeting of friends causing flushing and profuse perspiration although the embarrassment was only slight. She had also tinnitus, vertigo, and showed a reduction of the blood lymphocytes to 7 per cent. The lymphopenia was suspicious of an impaired hæmopoitic organ. So it was thought best to begin treatment by an attempt to rectify this. So the hæmogenous organ par excellence was chosen as the therapeutic medium, and thymus gland quickly relieved her; and she returned home without further investigation and remains well.

DIZZINESS AND ASTHENIA.

A Virginian, of 33, was referred to me by his physician for a dizziness, without headache, of two weeks duration, occasional nausea, which was attributed to a relapse of constipation and "nervous indigestion" unbenefited by diet, of nine months duration, which he had had five years before, with full recovery from stopping beer drinking and smoking. He was apprehensive of heart trouble and of impending death therefrom. He felt much exhausted at times and was subject to colds.

Examination was negative except a blood pressure of 96 and diastolic of 62 sitting. Hypoadrenia was thought to be responsible for the dizziness as well as for the indigestion. This diagnosis was justified by the patient's complete recovery in a week, the blood pressure rising to normal, thanks to two grains of adrenal substance twice a day.

The term is simply the expression of the many uneasy sensations in the abdomen in persons where no lesion is formed to account for them. Such a condition is often the result of an irritable condition of the negative nervous system.

PSEUDO-GASTROPATHY FROM HYSTERICS

In January, 1912, a child aged eleven was referred by Dr. Jung, who had been treating her because of dyspepsia and a capricious appetite. During the preceding three years she had left school three differ-

ent times because of her health; the only occasion on which any definite disease had occurred was six weeks before she was sent to me, a slight operation upon an infected corn. After this she had been dieted by Dr. Jung, and seemed to improve for about two weeks; but during the week preceding my consultation she had lost one and a half pounds.

Anamnesis. Upon going to bed she feels sick and weak, and pains shoot all through her; she has had a constant headache for several months. When she feels ill, she is very peevish; and she felt homesick for playmates as she had made no friends in Washington where she had only been a few months. Instead of playing she sat or lay about most of the day, feeling too tired to fetch her books for reading, of which she was formerly very fond. She had also been fond of games formerly. She had had glasses since the age of eight, but had not worn them until lately. Her appetite was very poor.

Examination. Showed rather feeble reflexes. Motility less vigorous than normal, especially in the ankles; the feet flat, but not pathologically so; unskillful diadocokinesis; a tic of the shoulder, and much wriggling and normal sensibility.

Psychologically, there were no intellectual abnormalities nor marked emotional reactions except that the little girl wept when it was proposed to take her away from her mother and father at the hospital. The mother had been very conscientious in her upbringing; and this had reacted on the child, before whom far too much attention had been shown regarding both manners and physical welfare. Conversation before her would frequently concern the appropriateness of different foods and their digestibility, and the atmosphere of the home was one of solicitude about the child's health.

As an infant, she was not retarded; she had been apt at school except in writing, when her hands would jerk, but they did not do so in sewing, in which she was skillful. Her bad writing in school disturbed her, and she would become "hysterical." Respiratory infections were easy and frequent, as was the case with her father. Perhaps this was accountable to mouth breathing; for this adenectomy was done when she was eight.

Diagnosis. As Dr. Jung assured me that the stomach functions were performed quite well and that he could detect no physical disorder of the digestive apparatus, and as the condition for the implantation of an *idée fixe* were apparent, and as conversation with the child herself corroborated my suspicion of this, it was evident that we were dealing with a case of hysterical nosophobia. By this is meant a fear of disease

implanted by suggestion, a matter very easy in young children and uncritical people in general. But it is quite exceptional for food and appetite to be the subjects of a phobia in so young a child, for in the child the vegetative functions and instincts are usually paramount. While in Paris in 1906-1907 I saw one other case of this type of false gastropathy in a young child (published by Déjèrin since).

Treatment. She was sent to the hospital on account of the nosophobia from which she suffered, the result of too much sympathy at home. When her parents left her she wept bitterly, but she was soon cured by being made to breathe in quadruplets and by a little "jollying." She promised she would try to behave properly if her parents were allowed to visit her. The promise that they might do so stopped the weeping for twenty-four hours; the visit was postponed, however. She was encouraged to play with another little girl patient; and this she came to enjoy so much that she ceased to ask to go home. When she had become quite contented and happy she was allowed to return home, where she has remained well ever since.

The treatment in hospital consisted of creating an atmosphere around the little patient designed to show her how trivial were her own preoccupations about what she should eat as compared with the real suffering and disabilities of the patients around her in the ward. Of design she was placed in the open ward in preference to a private room. She was shown to what a degree her feelings and behavior were under her own control, and no solicitude was shown about whether her food would agree with her or not.

It is not possible to set down in detail the numerous measures used to destroy the inconvenient suggestions to which she had been subject so long. While the therapeutics inevitably contained a modicum of suggestion, yet the end worked for was always the giving of a rational understanding to the little patient of why her symptoms had occurred, and how to prevent them in future. In other words the *modus operandi* was persuasion and reëducation. Towards this the hospital furnished a valuable aid; not merely because it was a hospital, but because the nurses were intelligent coadjutors of the case. The child had been too much derationalized to have been manageable by office consultations alone, unless the mother had been able to collaborate, which she was unable to do, not from lack of intelligence or conscientious desire for the good of her child, but because she had not understood the psychological mechanism of the daughter's illness. The mother's reëducation was much more readily effected when uncomplicated by the child's

presence. Its success was shown by her successful management of the child when she returned home, for eighteen months later there had been no further trouble.

HEADACHES AND DISCOMFORTS.

A woman of 48 was referred in March, 1915, by Dr. Howard Kelly of Baltimore, because of headache and insomnia. The former had occurred since childhood, but for eight months had been very severe and almost weekly in their occurrence. They may commence at night, and always last until sleep, although they may last two days. Nothing relieves them, there is no nausea, scotoma, or vomiting, although usually slight constipation. Alvoline for six weeks had not relieved the headaches. Although the digestion had been incriminated, and she had eaten no fried food or pastry and had latterly given up milk, custard, and sweets, no relief had been obtained. She was a very strong, active woman, but adipose. The reflexes were over active, the fat slightly hyperaesthetic, the blood pressure was 175, diastolic 125 the vessel walls soft. At the base of the optic papilla there was slight indistinctness but no bulging. The urine was normal, and there was no extra motion in the nights except during headaches, after which diuresis was very copious.

Under appropriate treatment the blood pressure fell by stages to 150-105-145-95, 138-98, 140-90, 126-88, with only one headache in eighteen days. Four weeks after I saw her, however, there was one very violent headache with a blood pressure of 150-108, two days later a slight blurring of the disk occurred.

In June there was one slight headache and she woke with a very severe one which was stopped by sweating and massage at 2 p. m. Ten days after this the blood pressure was 130 and 90; while standing up, 124-78. The rest of the summer continued without headache, but one occurred in November after a fall. The blood pressure at that time was 145-90 and 150-100 on different occasions. She had, however, ceased taking cereal for fear of adiposity. Had ceased milk also. Since then I understand from Dr. Kaufman, the patient's physician, that she remains comfortable and free of headaches.

A woman aged 43 was referred by Dr. Wilmer because of morning headaches since the age of twenty-five, for which an ocular muscle unbalance was in his opinion not entirely accountable. On account of her feeling that she could not control herself and of the melancholy induced thereby, Dr. Wilmer believed that neurological treatment might

prepare the patient for a tendon advancement which he was unwilling to undertake otherwise, as a previous tenotomy at different hands had failed to relieve the headaches.

Examination showed no organic defects and a blood pressure of 158-112, which did not rise on standing up. There was no constipation, but she had greatly restricted the carbohydrates for a year, and had thus reduced to 125 from 170 pounds. I considered it desirable to have the kidney function tested, and Dr. Hagner reported 50 per cent return of phenosulponephthaline in fifty minutes.

In the meantime she was given standard low protein diet, baths and massage, hormotone, and advised to occupy herself as much as possible. In six days the blood pressure had fallen to 136-90; standing up, 120-86, although lying down it was 150-100.

A woman of 57 was referred by Surgeon General Blue, March, 1916, because of dizziness, general nervousness, and pains in the leg which interfered with sleep. She had formerly had migranous headaches, but these had diminished for some years. There were no neurological signs, but the blood pressure was 220-143, standing 215-150, and the left dorsalis pedis and the right posterio tibial arteries were markedly sclerosed. The pulse rate would rise to 120 at times; it was usually about 90; the nose was bled at times.

The patient was given appropriate diet and baths, but soon had to return home because of her daughter's illness. The case is given as an illustration because of the well known disappearance of periodic headaches in certain persons as age advances, and to illustrate the frequent relationship of this with high arterial tension. In order that these observations may be compared with the fact that many cases of high arterial tension without headache are frequently modified by the mode of treatment which benefits the headache or of cases which have that.

X-RAY.

A woman of 37 was referred by Dr. Albin of Charlestown, W. Va., September, 1914, on account of a swimming feeling in the head, with headache, and occasionally with extreme dizziness, but her chief complaint was her indescribable discomfort, which she called "awful," mainly in the head, but extending to the whole body, also sharp pain in the calves, a feeling of weight in the stomach, and a blurring of the eyes. Menstruation had been over-frequent, there had been a convulsion five months before, and another three months later, followed by stupor, after which had occurred diplopia lasting a week. She had been very nervous and shaky all this time.

Examination showed no diplopia, considerable spasticity, and much exaggerated reflex, slight edema of the optic disk. The possibility of luetic infection suggested by the history of a genital sore was negatived by an examination of the spinal fluid in which the albumin was not increased and the cells numbered only 2 per mil., while the blood Wassermann was negative.

Suspecting growths in the uncinate region on account of the nature of the feelings, the levulose tolerance was sought and found excessive, a dose of 300 grams causing no glycosuria. A picture of the sella tursica was then taken; it was found eroded and flattened. Careful study of the visual fields by Dr. Davis showed much restriction, and inversion of the color fields.

Treatment. Periodic röntgenization of the pituitary region led to disappearance of the headaches and blurred sight, restoration of the full visual field, diminution of the distressing feelings, great improvement of the spasticity, so that within a year she was quite well.

A slight relapse was again successfully treated early in 1916, and the visual field again restored, since when she remains well.

PARESTHESIA AND OCULAR ASTHENIA.

A woman aged 42 was referred by Dr. Wilmer, in February, 1916, on account of a swimming feeling in the head and an aching of the limbs, especially in the heels, pricking sensation, especially in the knees, and great nervousness, trembling, and starting on the least provocation. Sleep was irregular. Until eight years before there had been periodic headache, nausea and vomiting lasting about twenty-four hours. (Migraine.) There was pain in left shoulder and arm, and at times loss of power in using the hand. For two years this had extended to the right arm also. For eight years she had scarcely used her eyes, as doing so makes the head swim. Crowds and conversation enervate, may even cause weeping.

She had always been retiring and a blusher. Her nervousness had been greatly aggravated by the death of her father, whom she had nursed for fourteen years, during which he had been blind for twelve. The only objective abnormalities were tremor and perspiration of the hands, enophthalmos, slight dermagraphia, tachycardia, pulse 100; standing, 114; after five stoops, 141. Blood pressure, 130; diostolic, 90; standing, 125 and 84; and an increase of weight from 129 pounds to 169 pounds, 29 pounds of which had come in the preceding year. There was a lymphocytosis of 33 per cent, total white cells being 12,200. Phenolphthalein return, 50 per cent in 70 minutes (Hagner).

The condition was regarded as endocrine. There was subcutaneous tenderness. The patient was given mixed hormones and an organic phosphorus.

In a week the blood pressure rose to 145-90, 148-94 on standing. The pulse rate fell to 96-99 and 108 sitting, standing, and after five stoops respectively, and she was greatly improved subjectively and had more energy. The diminution of pulse continued on her return home, falling sometimes to 72 in the morning and 76 in the evening, and averaging under 80, the former a little over 80. There was less pain and she felt better, although still having neuralgic effects, but some cardiac pain occurred, which I attributed to the pressor hormones being taken.

Two months later the blood pressure had fallen to 124 standing; she had further improved and would sometimes feel rested on waking, which she had not done for some years, while tremor had ceased. The pulse rate, however, had risen towards 90. In September she was not so well again, the hormones having had to be interrupted because of the cardiac distress and anxious feeling they produced. But she still sleeps better, has more strength, has less orbital pain and nervousness, and had lost 12 pounds. She was given pituitary gland, and the following month had a return of pains behind the eyes and swimming in the head and aching in the limbs. She was then given anterior lobe of pituitary because worse. She is now better again upon the treatment at first given being resumed.

The general nervousness which was recognized by Dr. Wilmer as so important a feature, was in this case not due to a psychological situation. The woman's attitude towards herself and others was perfectly normal. She had no obsessions, morbid anxieties, phobias, or hysterical ideas. The inability to use the eyes without disturbance was due to a neural inadequacy which must therefore have a physical source. That this was of a metabolic nature is to be inferred from the neuralgias, hyperesthesias, tachycardia, raised blood pressure, and increase of weight, tremor, dermagraphia, hyperhydrosis. That hyperthyroidia is concerned is shown by the tachycardia and tremor, but that it is not a sole cause is shown by the lymphocytosis of the blood with the marked asthenia. Some clinicians believe these signs indicate thymus hyperplasia. But in this case no choking sensations were present.

Hyperesthesia of subcutaneous tissue occurs in the adiposis of anterior pituitary insufficiency. But there is no somnolence to corroborate this.

The case is instructive as showing the complexity of the data required for the interpretation of a functional case of this type, and that physicians are no longer justified in a diagnosis of prostration or neurasthenia, least of all to attributing to psychoneurosis such phenomena as these. Psychoneurosis has very definite characteristics susceptible of clinical demonstration. The fact that this case is not yet completely adjudicated makes it all the more impressive as an illustration of the objects of this paper.

SCIATICA AND OTHER PAINS.

A woman from Ohio sent me by Dr. Tonkin of Martinburg, West Va., had variable pains, including headache, for five years, beginning as double sciatica. She was very nervous and would tire quickly. With the improvement of the pains her general condition became worse. She had had iritis twenty years before and had been treated for rheumatism.

Examination showed absent Achilles reflexes, loss of deep pain sense in left leg, diminution of prick sensibility. Loss of the first cardiac sound with systolic bruit, sclerosis and dilatation of the superficial veins. Lumbar puncture showed only 2½ cells per mil., but a positive globular test, and the luetin reaction was positive.

The diagnosis of vascular syphilis was made and appropriate therapy recommended to her physician who had sent her to me. Had her former physician properly examined the case irretrievable deterioration would have been prevented, instead of loosely attributing the morbid sensations to rheumatism and looking upon the headaches less lightly as is often done. (See Author's paper on "Headache in Relation to High Blood Pressure.)

NUMBNESS AND RHEUMATISM IN LOWER EXTREMITIES.

A lawyer was referred by Dr. Claytor, May, 1912, because of intermittent pains in the calves which had begun six years before. They had been preceded by a numb, full feeling in the feet which had been clumsy for four years; there was also a slight deafness.

Examination showed loss of Achilles, patellar and cremaster reflexes, while the plantar were feeble, the triceps diminished, the gluteal, bulbocavernosus and left radial increased. The left pupil was dilated, irregular, and reacted feebly to light; there was tremor of the tongue, slight coarse nystagmus, slow diodocokinesis, slightly irregular and stamping

gait, left Rhomberg, delayed sensibility of the lower limbs, asesthenia of the left tibia, hyperesthenia on the lower thorax, deep pain, dulled and delayed.

A diagnosis of tabes was made, but in the lumbar puncture made in order to estimate results of treatment, 38 lymphocytes per mil. were found, and increased protein was found.

Mercury was given for two weeks, causing aggravation of the pains after two weeks. They were dispelled by salvarsan. I went six days after that and only 13 cells per mil. were found in the spinal fluid. Ten days later salvarsan was repeated. Two months later pain recurred for two days. One month later salvarsan was repeated, mercury having been given steadily by inunction.

Examination then showed nystagmus absent, tongue scarcely trembled, diodocokinesis normal, walk almost normal, but the Rhomberg and deep reflexes were as before, and the left pupil quite paralyzed to light and somewhat to accommodation. The sensibility, however, was almost normal, there being now no slight delay of the left lower tibia.

Had the abnormal sensation of this man continued to be regarded as rheumatism, he might have looked for an upshot similar to that of the preceding case. As it was, Dr. Claytor saw the need of neurological consultation, the diagnosis was made, and the proper treatment arrested the disease while the damage was inconsiderable.

NUMB SENSATIONS OF THE EXTREMITIES.

A man of 60 was brought to me by Dr. d'Arcy Magee, because of marked ataxia. He recollected persistent numb sensations of the hand four years before, and of the feet two years before. For four months there had been marked leg tire.

Examination showed impairment of the right pyramidal tract shown by P. R. plus ankle clonus, extension of right toe. There was diminution of vibration sense, especially in the fingers, and of attitude sense in the fingers and left lower limb, with defective spacing sense, though localization was accurate and temperature sense normal, and pinpoint well felt except in the segment supplied by the lower part of the cervical enlargement of the cord. The pupils reacted, and motion was normal.

The diagnosis of profuse spinal sclerosis from pernicious anemia was confirmed by examination of the blood. Death in six weeks was predicted, and unfortunately it occurred.

AS TO NEURITIS.

The term neuritis is currently used without exactness. I have heard it applied to the shooting pains of locomotor ataxia, and of spondylitis, the pain radiating down the arm when there is sub-acromial bursitis, the generalized pains of persons in ill health and to many other conditions, without any attempt to ascertain by means of the proper clinical tests whether or not there was an inflammatory condition of nerve trunks or endings.

On the other hand, in innumerable instances when neuritis in a mild degree was present, it has been overlooked, and the pain has been attributed to disease of a subjacent, neighboring, or related organ; or the condition has been designated mental, hysterical, subjective, functional, imaginary, according to fashion.

The suffering to the patient and the harm to medical prestige of mistakes of the latter kind are regrettable, for the diagnostic criteria are usually simple and sure. Where, however, the degree of irritation is insufficient to furnish clinical signs, diagnosis requires special experience of neurologic conditions and psychiatric possibilities.

A DELUSIONAL BESETMENT REMOVED IN ONE INTERVIEW.

An exceedingly interesting case of this kind is that of an old lady, a widow of a doctor, who was brought me recently because her friends and the dermatologists she had consulted both in Washington and Baltimore supposed that she was suffering from a delusion, or at least an *idée fixe* that she was infested by parasites of the scalp and face, and was becoming dangerous through the possibility of infecting her family and friends. This notion so preyed upon her mind that she talked of scarcely anything else; so that her friends were most concerned, and feared she was losing her mind. The source of this idea was the slight infection by a hair switch some years before, from which had dated the annoying itching she had suffered ever since. Her belief was corroborated by the browning and thickening of the skin, and by massage having forced out fine white wormlike contents of sebaceous follicles. The little knowledge she had of medical matters had quite convinced her of her interpretation, especially as lately a crawling sensation had extended up the spine and hip. A dermatologist told her she had no parasites because she had massaged them out, besides which he gave her some calcium lactate.

Examination. This revealed the foundation of two conditions. Reflexes were exaggerated; the blood pressure was elevated, 176 and 106; the pulse was very rapid, 112; the urine was scanty, high colored,

very acid; the conjunctiva was congested; there were periodical attacks of drowsiness, with nausea and pains in the back. She had not modified the dietetic habits of youth, taking excessively protein and xanthin bodies and not taking enough carbohydrates and salines.

Interpretation. The plurigenous paresthesiæ were simply quite usual accompaniments of hyperproteosis, which is indicated by the arterial hypertension, acid condition, and her dietetic habits. They are believed to be due to irritation of the nerve endings by a toxic protein insufficient to produce hyperirritability of nerve trunks ascertainable subjectively. Her own interpretation was a very natural one in view of the unsatisfactory explanations she had received.

Treatment. The pathogenesis of her symptoms was explained *until she grasped my meaning.* She was given a low protein diet, and small doses of thyroid gland, ½ grain twice a day. As a result, in ten days the blood pressure had fallen to 150 and 100, the paresthesiæ had greatly diminished, and her morbid ideas had absolutely ceased.

In the above case neural irritation had never been suspected as a cause of the condition which had been immediately regarded as mildly delusional. The case illustrates the need of psychiatrical knowledge for the diagnosis at least of any situation where morbid ideas play a part; for without the correct diagnosis intelligent management cannot be given.

A woman of 33 was referred by Capt. W. L. Davis, U. S. A., M.C., because of uneasy sensations and peculiar, light feelings in the head, some dizziness and unsteadiness of gait, and uncomfortable feelings at times in the hands and feet. She had consulted him on account of a slight fugitive diplopia, which he discovered was not due to muscular unbalance, and therefore assumed a neurological cause. A careful study of the case showed the following:

Intelligence not apparently impaired.

Emotivity easily influenced. (This is said to be normal to her.) Speech rapid, somewhat slurring, with an occasional slip.

Deep reflexes very active. Plantar flexion.

Sensibility normal; attitude conserved. No defect of hearing ascertainable. Air conduction better than bone conduction on both sides.

Motility. No inequalities of strength of limbs. Upper facial equal. Tongue straight. Lower left facial less than right. Left palate less arched than right. Uvula to the right. Diadocokinesis not abnormal. No ataxia of limb movements, but cannot stand on either leg alone; does better on left. No Rhomberg. On walking often staggers laterally to right or left. The raise of the right leg less than the left.

Diplopia except on looking downwards; the right image is higher and is seen with the left eye. Pupils react to light and accommodation and are equal. (Mackintosh 25-celled battery.)

Provoked vertigo: Faradism. With primary coil half way out, with either positive or negative pole, reaction only toward the left. With negative to right ear a bulbar crisis occurs, with weeping and nausea and a feeling of impending death.

Galvanism with 14 m. p. (30 on rheostat), two m. p. passing through, reacts only to the left. Cathode greater than anode. The tests had to be interrupted on account of the patient's fear.

Rotation tests. Ten turns to the left produced 12 seconds sensation and nystagmus to the right. Ten turns to the right produced 20 seconds violent sensation, nystagmus to the left followed by nausea. Systolic blood pressure, 133; diastolic, 98.

December 1st. Irrigation tests at 60 fahr. Sixty seconds on the right produced right nystagmus of 65 seconds. Fifty seconds on the left produced a left nystagmus of 50 seconds, which was more violent than on the right. With hot water the test was unsatisfactory, and was interrupted and followed by nausea.

The gait shows deviation laterally, variable in amount and direction. When made to walk while overcoming her diplopia, deviates to the left. On diplopic fixation of her finger does not deviate, but feels relaxed and wants to sit down. When looking to the left she veers to the right. She has the sentiment of not being able to communicate her thought to her legs quick enough, and says she thinks the wires are rusty. The unsteadiness is greatest of all when the deviating eye is used alone.

December 20th. She has been nauseated and dizzy, but perhaps staggers less. Voltaic vertigo was provoked with 6 m. p. to the left and 28 m. p. on the right.

The patient's manner, which might lead one to suppose a lack of insight as to the gravity of her symptoms, is, I am assured, habitual to her. On the basis of these findings the diagnosis made was insular sclerosis. With careful treatment the patient considerably improved, and now, four and a half years later, has had no relapse and is a good deal better than when first seen.

Another case was that of a lady brought to me on Saturday, from New York. She had been in the hands of the best men in New York, but had never seen a neurologist. Every physician who saw her said it was entirely due to her imagination. She was nauseated to the extent she would vomit her food. Her sensations were entirely due to

an unwillingness to conform to the life with which she was placed with her husband. As a matter of fact, this woman, who had been subject to many operations, had a series of the same kind of sensations of the abdomen that a person has suffering from morbid irritation of the vegetation nerves in the abdomen, which are misbehaving themselves. She would have been benefited without the operations, which did not benefit her, had she been enlightened as to the real cause of her trouble. She has been greatly helped now by apotherapy in addition to the truth.

The crux of the paper is not to ignore the sensations of patients, but to inquire into their causes intelligently.

MEDICO-LEGAL ASPECTS OF INJURIES TO THE SPINAL CORD DUE TO TRAUMATISM.

J. P. Munroe, M.D., Charlotte, N. C.

Injuries to the nervous system often become the subject of legal contention and suits for damages. The physician is called in as an expert witness, and unless he has some definite landmarks to guide him and can attach the proper importance to symptoms, putting each into its appropriate niche, a shrewd lawyer will soon have him floundering around in hopeless confusion.

I have sometimes used a little chart to represent these conditions.

Organic Lesions	Simulation
Borderline cases	Hysterics
Mixed cases	
Neurasthenics.	

At one end I place those in which there are well recognizable lesions. At the other end I place those which are pure simulation, malingerers. These represent the two extremes.

The other conditions lying between these extremes constitute the real battleground of most medico-legal controversies. There are borderline cases approaching the organic; hysteria, which has some resemblance to simulation; neurasthenia, lying in a sense between the latter two; and mixed cases which present symptoms common to two or more other classes.

These intermediate groups constitute the majority of cases which come into court and, paradoxical as it may seem, the contending parties are inclined to disregard them altogether, considering only the two extremes.

The attorney for the defense endeavors to explain all the symptoms upon the theory of simulation and contends that the patient assumes purposely and wantonly symptoms that have no basis in fact. The attorney for the plaintiff, on the other hand, not only upholds the sincerity of his client's contention, but endeavors to present physical evidences of an injury with anatomical lesions patent to the eye, or at least capable of definite demonstration by a medical expert.

Naturally and almost inevitably the physicians called in as experts by the two contestants become imbued to a certain extent with these partisan contentions, respectively. The result is that often a verdict is rendered in acceptance of one or the other of these extreme views, when it should be based on one of the intermediate conditions.

Let us consider these briefly. By organic lesions we mean changes that can be detected by the unaided senses, or by the use of laboratory methods and physical appliances, or deduced from certain signs and symptoms.

The malingerer has no actual lesion or injury and knows it, but willfully and for the sake of gain, simulates symptoms and endeavors to exhibit signs indicative of organic disease. There is no doubt that this class constitutes a large proportion of litigants, and it is our duty as physicians to use our influence in favor of righteousness and justice in endeavoring to minimize their claims and reduce their numbers.

Between these two extremes are many that, under present methods of diagnosis, cannot properly be classed with either. Generally they are cases that under proper conditions and with wise treatment will get well. For this reason, it would be unfair to the defendants to adjudge them permanently injured and award damages for serious organic changes that do not exist. On the other hand, these patients are often broken in health and are miserable, nervous wrecks, and could not justly be classed as mere pretenders, nor should they be refused reasonable compensation where culpable negligence has been proven.

In one group we have the hysterical cases due to accident and injury as the exciting cause. There is a popular but erroneous belief that a hysterical person is nothing more or less than a pretender. The fact is there is a neuropathic inheritance and the injury is the exciting cause which strikes the sensitive organism and throws out of balance the emotional and mental equilibrium. There results a morbid emotional state with disturbed volitional control and distorted mental attitudes. Consequently symptoms and signs may appear resembling almost any form of organic lesion. But this is a state of affairs due to a changed condition brought on by the injury, influencing a neuropathic

organization, and not the manifestation of willful perversity on the part of the patient. In other words, it is a real disease and deserves consideration and treatment as such.

The so-called neurasthenic class cannot always be clearly differentiated from the hysterics. These are cases in which, with an injury as a starting point and the only active cause, there ensues an exhaustion of nervous and muscular power, with disturbed metabolism, loss of weight, and mental weakness, but no especial mental or emotional disturbance.

Then there are borderline cases which cannot be certainly differentiated by the clinical symptoms, as they present some signs indicating organic lesions, but not sufficient to justify a definite diagnosis as such. The mixed cases are those in which there are undoubted lesions in the nervous system or other organs, often the muscles, associated with hysterics or other symptoms which somewhat distort their main features.

When called upon to examine and testify in cases of this kind, it is the duty of the medical expert to determine in which group the case is to be placed. If there is conclusive evidence that it is a case of pure pretense or simulation the expert will of course state this as his opinion. If there is proof of organic lesion there should be a clear statement of the extent, location and nature of the lesion, also what amount of physical or mental disability has resulted from the injury; finally, what is the prognosis as to recovery. Is the injury permanent? Will recovery be complete or partial? How long will patient be disabled?

If the case cannot be grouped with either of these extremes, then the physician should endeavor to state intelligently and clearly to what extent the patient is disabled and to what degree the accident is responsible for this disability. The prognosis should also be carefully considered, including with this the time to be consumed and the cost of proper treatment.

The following cases are presented as illustrations of the groups here described:

I. SIMULATION.

A woman was on a train that had a slight collision. Several months afterward she was induced to believe that her mind had become affected and her hearing injured by the accident. To this, the husband, who was the active litigant, added "nervousness and weak mind."

I could find no sign of real organic disease, and the only part she had been trained for was to appear deaf in ordinary conversation and refuse to hear a watch tick except when placed in contact with the ear. After talking with her in the loud voice required for awhile, I moved

to a considerable distance, as if by accident, and in a casual way asked an important question in as low tone of voice as a good ear ought to hear at that distance. She answered promptly. I tested both ears in this way and had no hesitancy in concluding that her only trouble was a weak mind; not strong enough in moral integrity to resist the influence of a lazy husband, coveting what he did not earn, and an unprincipled lawyer with an oily tongue and itching palms.

II. MIXED CASE PRIMARILY BUT FUNCTIONAL AT TIME OF MY EXAMINATION.

A physician was in a railway accident and was thrown backward across a seat. The right side of his back received the impact of the blow about the level of the middle of the right kidney. Soon afterwards he passed some bloody urine, and this was the only serious symptom that he had shown at any time. When I saw him three weeks after the accident he walked with a decided limp in the left leg. He was very much afraid his spinal cord had been injured, but complained of nothing especially except that he walked with a limp in his left leg. He was drawing money from an accident policy and wanted an intelligent statement as to how long he would be disabled, but beyond this he had no motive except to get well, as he had no suit pending. A careful examination of the reflexes, skin and muscle tests, including electrical examinations, convinced me that there was no organic disease of the cord nor any degeneration of the nerves. Moreover, the limp, while marked, was of the peculiar dragging character, characteristic of hysteria or suggestion. The left knee jerk was decreased, which was an indication of functional rather than organic disease. There was at this time no evidence of permanent damage to the kidney, although it had been sufficiently bruised to cause a passage of bloody urine at first. I gave the patient a comfortable assurance that there was no permanent organic injury, and that by comparative rest and intelligent care of himself he would soon be all right. This prognosis was later verified.

III. MIXED CASE.

A young negro man, thirty years of age, fell into the pit of a railroad turnstile, being knocked off into this place by the unexpected movement of the engine. His back struck a timber and he was picked up totally paralyzed in both legs. I saw him about two months afterwards at the request of his attorney, who had brought suit against the railroad for damages. The two railway surgeons and family physician who had attended him were good friends of mine and gave me the

benefit of their diagnosis. Their diagnosis was hemorrhage into the lower region of the spinal cord, and based on this, a very unfavorable prognosis was given as to recovery. I found on examination the skin hypersensitive and the muscles very tender and sensitive to pressure on both sides, especially over the right hip. But none of this soreness or sensitiveness extended higher up than the crest of the ilium. No disturbance of sensation or motion was found above this level. The deep reflexes on both sides were absent. A needle could be stuck into any part of his left leg without producing any evidence of pain. This was true also of the right, but to a less extent. He could put some weight on the left leg and bring it forward with a scraping of the toes while supporting himself on crutches. The right leg he slings forward as a flail dragging the foot after it.

Electrical tests of the nerves and muscles did not show any reaction of degeneration. A diagnosis of spinal cord hemorrhage could scarcely be maintained on these symptoms, for the following reasons:

1. The blow was received several inches below the lower end of the cord, and it was improbable that it would cause a hemorrhage that high up.

2. If a hemorrhage had occurred that high up, there would have been sensory symptoms higher up than the crest of the ilium.

3. If there had been lumbar-cord hemorrhage, we would have had rectal or bladder symptoms or both. There had been retention for a few days only after the accident.

4. A central injury of this kind would have produced nutritional symptoms and, perhaps, bed-sores. None was present.

If not spinal hemorrhage, what then? Was it an instance of pure expert feigning? Evidently, no. Perhaps not at all immediately after the accident. There was undoubtedly an element of feigning at the time I saw him, and it could properly be classed as a mixed case.

The exquisite tenderness over the right hip I attributed partly to the direct injury to the soft tissues or bruising from the blow, and partly to suggestion. The extreme degree of paralysis perhaps had an anatomical basis exaggerated by suggestion. The anesthesia I regarded dependent chiefly on suggestion. The most probable anatomical lesion of the nervous system to fulfill all conditions was hemorrhage in the canal pressing upon the cauda-equina. I regarded this as the worst probable diagnosis that could be accepted. As this is not necessarily a serious condition, I gave a favorable prognosis.

His attorney asked my advice about bringing the case to trial, saying he thought of postponing it six months. I told him that if he waited

that long his client would be so nearly well that he would likely get very small damages. He very promptly, on my advice, accepted a liberal compromise offered by the railroad. The patient was able to resume his work within a few months after this.

IV. ORGANIC LESION OF THE CORD. BROWN-SEQUARD PARALYSIS.

A young man was stabbed in the back with a knife. The blade, entering near the angle of the left scapula, went downward and inward toward the vertebrae. The man dropped to the ground helpless for the time being. This was on Saturday morning. On the following Tuesday I saw him in the recorder's court and made a partial examination. The following Tuesday, just ten days from the time of the injury, I had him in my clinic and, briefly, this is what I found:

A spastic paralysis involving the muscles of the left leg, especially the extensors below the left knee. Exaggerated tendon, reflexes in the same leg. No klonus. No Babinski. No paralysis or spasticity in the right leg. Sensation. No change in left leg, but a marked diminution in sensation of pain and temperature in the right. A marked evidence of temperature loss in the right was a large blister on the dorsum of the foot caused by hot water which he had not regarded as too warm for comfort. These symptoms indicated a typical Brown-Sequard paralysis, and showed that the knife had penetrated the crossed pyramidal column and middle gray matter on the left half of the cord.

The question to be answered further was as to the prognosis. I gave a favorable prognosis as to a recovery for all practical purposes, but a guarded one as to absolute cure.

When last seen this patient walked without limp, but there was still slight spasticity in the left leg and some numbness in the right.

DISCUSSION.

Dr. I. W. Faison, Charlotte: All I want to say in regard to Dr. Munroe's paper is that it is a fine paper, covering a question that I have not been able to handle. Nothing has ever served in my practice equal to a good-sized check. Whatever their pains were, when the verdict came in and they got the check they were well.

Dr. Tom A. Williams, Washington: With reference to the last remark, those who refuse suggestion and those who will not be influenced by suggestion, we can differentiate a hysterical patient from a neurasthenic patient by signs that are well known. In 1909, before the Tri-

State Society, I myself presented them. The hysterical patient is playing a part always. He may not do it intentionally. He is really an actor. See Dr. Bailey's First Book and also my paper published some years ago in the *Medical Record,* 1909, also the Traumatic Neuroses.

In regard to Dr. Munroe's paper, I am not inclined to agree with two points. It takes eight segments to get across the cord. I saw Dr. Munroe's Greek in Washington some years ago, at least we had a Greek from North Carolina. I disagree with Dr. Munroe that reflexes always decrease; they are sometimes increased in hystericals, but not because of their hysteria.

About Dr. Leinbach's paper, the pitular reflexes are governed by the second, third, and fourth segments. Remember that paralysis, even organic, can recover; nerves, even when wounded in the roots, can regenerate and do regenerate, as has been proven, as we see every day in the syphilitic cases that have recovered. But when the fibers are destroyed, although the anterior will, of course, regenerate, there is, except between the ganglion and the cord, no regeneration of the posterior root fibers within the columns of the cord.

Dr. T. W. Davis, Winston-Salem: I was struck by the absence of any mention on the part of Dr. Williams of focal infection in connection with his cases; the absence of any mention of consideration, investigation, or elimination of such infection. I would like to ask Dr. Williams if he does or does not consider this important, this toxemia from fixed areas of infection in connection with functional or organic nervous diseases.

Dr. Tom A. Williams, Washington: I am glad that question was asked. Cases are sent to me as a rule after a very complete examination by good men. The question of focal infection has always been considered by previous investigation of the patient. The reason why I did not give an account of focal infections in this paper is because everybody is now talking about the matter, so it is not necessary to emphasize it here, as it is already being discussed in the surgical section. I tried to bring forward those types of cases not already in the air. Though I by no means deny the importance of focal infection, for I see a number of them, but I see far fewer than I used to, and far fewer than if everybody in the profession was not fully aware of them.

Dr. R. F. Leinbach, Charlotte: I have nothing to add beyond stating that the case was a pure conal case in the early stage, as when first seen, before the diagnosis had been made, there was no loss of patellar reflexes. At the time the examination which I have reported was made, it had evidently spread upwards, involving the lower lumbar segments. I made that statement in the paper.

Dr. Benj. K. Hays: I wish to announce that the examination for medical officers for the Reserve Corps is now going on and will continue through the entire session.

Dr. Edward J. Wood, Wilmington: When the preliminary program went in my paper was changed because of the apparent need of something said on focal infection. Later it was found everybody was writing on my original subject. I want to apologize in the beginning for presenting the most elementary paper ever presented before this Society.

THE NEW CONCEPTION OF HEART DISEASE.*

Edward J. Wood, M.D., Wilmington, N. C.
Physician to the James Walker Memorial Hospital.

When most of us were students we were taught that the diseases of the heart were divided into a consideration of valve affections, of the pericardium, and the myocardium. If the valves and the pericardium were normal the trouble must of necessity be with the myocardium. I vaguely recall reading somewhere that one of our great medical philosophers made the statement some years ago that myocarditis could only be diagnosed post mortem. Fortunately such is not the case today.

A few years ago my interest in the heart was aroused by the frequent recurrence of broken compensation and sudden death among patients in whom I was unable to detect any lesion of any sort with the ordinary means at our disposal. In reviewing the subject of the heart generally I was impressed with the progress made in graphic methods of examination and the fact that without a knowledge of these methods it was impossible to read on this subject with any degree of intelligent appreciation. So I invested in a polygraph and Mackenzie's matchless work

*Read before the Third District Medical Society, January 4, 1 917.

on the heart and as a result have spent the most profitable period of my life. It has opened up an entirely new field which is more attractive than golf or fishing, and equally as diverting.

Prognosis still remains one of the most important parts of our day's work. The family must know, and nothing inspires confidence so readily as the gift of accurate prophecy whether it be of good or evil. If there is anything scientifically accurate in this division of medicine it is with the polygraphic records. This is well illustrated by the discovery of the *pulsus alternans,* which is such a definite storm signal that even the most skeptical will only disregard it once. This is justified by the fact that it gives every man removed from the ward privileges of the great hospitals a large cardiopathic service. Mackenzie is the first to emphasize the wealth of clinical opportunity of the general practitioner even in the country. For heart disorders of the kind before us in this paper are as commonplace as the gallberry bushes which we all pass at every step of our way. In one short year I traced in my own practice every condition mentioned by both Mackenzie and Thomas Lewis in their two matchless works on the heart which have done so much to advance English medicine. Each one of us sees auricular fibrillation, auricular flutter, heart block, *pulsus alternans,* and the other indications of defective heart action every day just as much as our city friends, for these defects seem to be common to all classes everywhere; but we have not been interpreting them. To prepare our people for the probability of sudden death and to prepare ourselves for such a shock is enough reward for the conscientious physician. During the past year I have been able in a number of cases to determine by the graphic method that such melancholy consequences would certainly occur, and as a result I have removed a large part of the shocking feature, I have relieved myself from the distress which I have always felt on the death of a patient, and I have made my plans always with a view to providing medical comfort to those of my patients who were in constant danger of sudden death.

The new conception of the heart is based on a more accurate knowledge of the rhythm of the heart, on the conductivity of the auricular-ventricular conducting paths, on the contractile function of the auricle and its disturbances, and the point of origin normally and pathologically of the heart impulse. Much or all of this is probably very trite and very elementary to most or all of you, but I am hoping to save that one fellow who was as ignorant as I was two years ago some of the effort I expended before I could see light.

While in many cases it is not possible to recognize some of these disturbances without special instrumental aids still there is much to be learned about them in other ways, so that at least a tentative diagnosis may be made.

By far the most important of these conditions is auricular fibrillation. In this disease it is noted that the auricle to all appearances ceases its contraction, but close inspection reveals a dancing activity in which the muscle fibres do not contract coördinately, but in an entirely irregular manner. This condition is known to some as delirium cordis. Only a very small part of the auricular fibrillary movements finds its way to the ventricle and, as a natural consequence of such disorder in the auricle, the ventricle becomes most irregular. Usually there is an increase in the radial pulse rate, but this is not essential. Absolute disorder always occurs. A simultaneous tracing of the jugular vein and the radial pulse shows a marked difference in rate and an absence of any orderly relation between the two contracting chambers of the heart. When the ventricle begins to fibrillate, as it finally does in some cases, sudden death results, and this is thought by MacWilliams to be the common cause of sudden and unexpected death. Mackenzie says that fully 70 per cent of the cases of myocardial insufficiency are of this class. It is a condition which when once established is thought to persist throughout life. It is the one cardiac condition for which most can be done. Some observers have ventured the suggestion that it is only in this condition that digitalis does any good, and that oftentimes when we charge the failure of results from this form of therapy to an inert preparation of the drug the real explanation lies in the fact that fibrillation has not occurred.

While it is said that fibrillation is a continuous affair and when once well established it never ceases, the fact must not be lost sight of that in some cases it occurs as an attack of paroxysmal tachycardia, but the pulse is still disorderly. I have under my care such a case. The radial pulse rate reaches 180 and is of a most irregular type. Recently I saw with Dr. Cranmer a lady of 83 years who had never been sick. When seen by me she was free from every outward manifestation of disease. The pulse tracing revealed nothing. From Sunday until Thursday she had five attacks and died in the last. These attacks were characterized by fainting followed by a convulsion and a rapid, irregular heart action. After the subsidence there were left signs of profound shock. The whole attack lasted only a few minutes. A tracing during the attack could not be had, but, owing to the rapidity added to the marked irregularity, I venture the diagnosis of auricular fibrilla-

tion which resulted in sudden death when the ventricle took up the fibrillary activity. Had the pulse been slow we would have had a typical picture of the Stokes-Adams syndrome.

Another case of this sort was complicated by the *pulsus alternans*, which led me to give the family an unfavorable prognosis, which was justified by her recent sudden death with symptoms of pulmonary edema and the other signs of decompensation of an acute nature. During these attacks these patients suffer with violent dyspnoea and cyanosis, and have all of the oppression of angina pectoris without the pain.

Auricular flutter is a recently described condition which has attracted great attention. It is characterized by a regular tachycardia. The pulse rate of the ventricular side is from 120 to 180, while the rate of the auricle is double that number or even more. This condition is the more common form of paroxysmal tachycardia. It is probably not so serious as fibrillation, but cannot be looked on trivially for the reason that a disturbance producing such profound symptoms must have its origin in a grave disorder which may yet be found. In some cases this condition is attended with fainting and convulsions. Only recently one of my professional friends gave me the privilege of studying the case of an elderly negro who has such attacks. The snapshot diagnosis was uremia, but the urinary findings, the blood pressure, and the subsequent course of events did not justify such a conclusion. A study of the pulse rate at this time is sufficient for a diagnosis.

There are many variations in the manifestations of auricular flutter and you must be at once impressed with the many features of the condition which resemble heart block. It is a remarkable fact that in flutter digitalis often reduces the pulse rate and otherwise so affects it that we have resulting a true block. In flutter the ventricular rate depends entirely on the ability of the bundle to receive and transmit impulses from the auricle. This condition is best diagnosed with the electrocardiagraph because of the difficulty in detecting the very rapid rate of the auricle. In my own practice I am largely governed by the process of exclusion in making this diagnosis with the polygraph, though in many cases such a diagnosis is perfectly simple.

Heart block is a condition characterized by a disturbance of the conduction function of the auriculo-ventricular septum. The bundle of His is most frequently the seat of pathologic change in this condition. This affection is due to an acute inflammatory change in some cases while in others it is part of a general process of sclerosis. My friend and classmate, Ralph Lavenson, was the first to point out the

occurrence of gummata of the bundle of His as the cause of this remarkable condition. In this disease there may be simple delay of the stimulus of contraction as it passes from the auricle to the ventricle; or, the stimulus at times is prevented from passing over; again, the stimulus may be completely blocked and the ventricle contracts from a stimulus which arises in a portion of the auriculo-ventricular bundle which has escaped the diseased process. In this condition of the heart there is marked increase of the a-c interval which I hope to be able to demonstrate on the tracing chart. In complete heart block there is total disassociation of the contractile activities of the auricle and ventricle so that they have separate rhythms. According to Mackenzie if the ventricular contractions are over 36 per minute there may be a relationship between the two contraction processes, the ventricle responding to every second, third, or even fourth auricular contraction. When the contractions of the ventricle are under 30, as a rule there is absolute independence between the auricular and ventricular contractions.

The pacemaker of the heart is situated at what is known as the sino-auricular node. The tissue of this node, which consists of a specialized network of muscle cells richly supplied by the nerves of the heart which enter this region, lies, therefore, at the mouth of the superior vena cava and is imbedded in the right auricle (Thos. Lewis). In many of the arythmias if not all of them the contraction begins at some other point than the normal one. This fact has been determined by the electrocardiograph.

In many of my tracings I find indications of dropped beats which might be interpreted as heart block. Unless the block is confined to the ventricle and does not include the auricle, I would not be justified in this conclusion. The sinus irregularities involve the whole heart as stated above and are influenced by the respiratory action. This point can only be determined by instrumental means. Right now I have under observation a definite case of partial heart block in a patient who for months has had an auricular fibrillation. Recently I found in a boy of fifteen years recovering from a mild lobar pneumonia a pulse rate of 47, which was due to partial heart block.

Heart block is a condition which is not incompatible with many years of life in many instances. I recall a patient of mine who died in a few minutes during the first attack of heart block. Like many other diseases, it is of all degrees, and the simple diagnosis of heart block alone offers no aid to us. The Adams-Stokes syndrome is a heart block attended with unconsciousness and convulsions. I have

shown above that there are more arythmic disturbances than heart block attended with this group of symptoms. I recall a case of true Adams-Stokes disease in Dr. Osler's service at the Hopkins. The patient was a young negro and the rate of his pulse as I counted it was 23. This was probably a case of gumma of the bundle of His.

The condition of extra-systole, or intermittent heart as it is called, has excited undue apprehensiveness on the part of the profession. The victims are often excluded from the Army, the Navy, and from life insurance, and as a result, go through the balance of their days in hypochrondriacal misery and become the easy mark of all charlatans. Mackenzie says that while extrasystole sometimes foreshadows the approach of grave cardiac disease, still he has seen patients reach the age of 80 undisturbed by it. The condition is only important to us today in order that we may know what it is not. If the use of means of precision in the study of the heart will set this matter right and do this alone, it will be well worth the time spent on it and justify us against the charge made by some of our brethren of too much science.

The condition known as the *pulsus alternans* has recently attracted much attention. This interest was augmented by the observation of Herrick of Chicago, who found that it may be readily detected by the use of the blood pressure instrument. For example: if at 180 the rate heard by the auscultatory method is 50, and by dropping the column to 120 the rate heard is double the former or 100, there is no doubt about the condition being *pulsus alternans.* I have detected this with the blood pressure instrument and have confirmed it with the pulse tracing. No information could be more important, and it is certain that the physician who has found this in his case knows where he stands, what to expect, and how to advise the family. Thomas Lewis says "it is the faint cry of an anguished and fast failing muscle, which, when it comes, all should strain to hear, for it is not long repeated. A few months, a few years at most, and the end comes." In my own practice it has been as certain a sign as tubercle bacilli in the spinal fluid, and it has relieved me of the sudden shock of an unexpected death.

The myocardium is at last coming into its own. We know now that the acute infections may do as much harm there as to the endocardium, and that the rheumatic infection as often attacks the muscle as the valve producing a degeneration that leaves as permanent a mark. We know now that the stethoscope tells us very little—almost as little as in incipient phthisis. We know that a murmur in itself means nothing, and that some of the most competent hearts have many murmurs which are harmful only from the standpoint of life insurance and the public

services. We know that a heart which can stand the most rigid of the ordinary tests of ten years ago may play out in another hour, and frequently these hearts may be detected, the patient put at rest, and many months or years given them. Rest is as important in the heart affections of this order as in tuberculosis. Prolonged rest extending over many months will restore many of the conditions which we now count hopeless. It has never received the emphasis it deserves. The intelligent use of digitalis is made possible by the new order, and we learn that in the regular hearts with dropsy there is little reason to expect much return from its use. It is in the fibrillating hearts that we see the place where digitalis becomes a specific. Strophanthin is a good remedy in times of great immediate danger. Its use is attended with some risk and should never be too close on digitalis. Intravenously I will never give it again because it is too dangerous.

Dr. Edward J. Wood, Wilmington: The more we study hearts with the graphic method the more satisfied we are in hospital cases that the one thing that is certain in the study of the heart is that digitalis only helps a fibrillating heart, while in other cases prolonged rest will relieve the symptoms much more certainly than will digitalis. In many supposedly incurable cases, especially of angina pectoris, prolonged rest will so completely relieve the condition that we are becoming optimistic in the possibility of an entire cure.

Dr. C. O'H. Laughinghouse: I have the announcement to make that the dance has been settled upon for Wednesday evening, and every gentleman in this hall is expected to go, Dr. Faison included.

CHRONIC NEPHRITIS OR BRIGHT'S DISEASE.

Dr. H. Bascom Weaver, Asheville, N. C.

My reasons for bringing this subject to the attention of the profession are: the alarming increase of mortality from this disease; and, further, because the late advances made in internal medicine make it possible, to a great extent, to *defer* if not to *prevent*, the ravages of this malady. Statistics show that in 1916 the mortality from tuberculosis, diphtheria, and other contagious diseases has been markedly decreased, while the

death rate from cardiac vascular renal diseases has increased 37 per cent; 100,000 persons in the United States alone having succumbed to this disease.

Many discussions have been held to determine the varieties of nephritis, which should come under the head of Bright's disease. Every case of chronic nephritis comes under Bright's disease; they are synonymous terms. The medical world has done simple justice and homage to the illustrious man who was the first to clearly establish the causes of the disease in connecting the clinical symptoms with the lesions of the kidneys.

EDEMA AND ALBUMINURIA

Definition. Chronic nephritis is a diffuse inflammatory and degenerative process, invading the glomerular, epithelial, and interstitial tissues of the kidney.

Classification. From a clinical standpoint two great groups may be recognized:

(a) Chronic parenchymatous nephritis, which may follow an acute attack, but generally comes on insidiously and is characterized by marked changes in the urine, edema, digestive disturbances, and, in the last stages, uremia; and at autopsy, by the large white kidney, and in later stages by the condition known as contracted small white kidney.

(b) Chronic interstititial nephritis, in which cardio-vascular changes are pronounced, without edema, and little albumin in urine; and at postmortem is found the red granular contracted kidney.

In no department of medicine, perhaps, is there more confusion regarding the terminology and classification of different forms as there is in renal diseases. A classification based on anatomical lesions will not harmonize with pathological physiology. Or a classification from an etiological standpoint is not suited to the class based on clinical symptoms of postmortem findings regarding structural changes. Astute clinical workers have tried to harmonize all these different conditions found in the kidneys, but have signally failed. "This is desirable and laudable," says Barker, "but knowledge is not yet sufficiently advanced to permit us to make etiological, anatomical, and clinical classifications coincide."

In both these forms the principal lesions are, (1) glomerular lesions and tubular lesions, in that form in which the parenchymatous is predominantly involved, and (2) the cardio-vascular group of cases where the arteriolar and interstitial tissues are predominantly involved. But any attempt at a sharp distinction between diseases of the parenchyma of the kidney and interstitial tissue has always failed; for every in-

flammation of the kidney is a diffuse process involving both the parenchyma and interstitial tissue. And, as Osler remarks: "In all instances changes occur in the epithelial, vascular and intertubal tissues, which vary in intensity in the various forms; hence we have tubular, glomerular, and interstitial nephritis."

The late advances made in internal medicine and a better understanding of the correlation between pathological physiology and experimental pathology, have given renewed interest in cardio-vascular renal diseases beyond the classification based on structural lesions, whereby we have been enabled to arrive at a more satisfactory arrangement of forms, based on the study of the disturbances of functions and the perverted metabolism which underlie them as causative factors. This seems to be the trend of thought and practice of the most advanced students of the day, who by the employment of the latest improvements in technique have been the most successful in arriving at correct conclusions in diagnosis, prognosis, and treatment.

By the aid of special tests for renal function, it is now possible to arrive at conclusions of renal capacity wholly unknown to the profession only a few years ago. Of course it goes without saying that the examination of the urine chemically and physically is of the utmost value to the clinician, for it gives him information of two types; information as regards normal and pathological metabolism, and information as to diseases of the kidneys.

ETIOLOGY AND PATHOGENESIS.

Most kidney lesions characterized as nephritis are degenerative in the main, and are of secondary origin—hematogenous—caused by toxic substances brought to the kidneys through the blood stream and include: (1) infectious diseases, sepsis, gouts, mineral and drug poisons; (2) auto-intoxication. The toxic, degenerative effects of the toxins of infectious diseases, especially scarlet fever and syphilis, upon the granular portion of the kidney are so well known that it is not pertinent to this discussion.

Auto-intoxication resulting from perverted metabolism of the end-products of protein digestion, is the main cause in 80 per cent of cases of Bright's disease. Food, then, plays a most important role as a causative factor. Carbohydrates and fats are eliminated principally through the lungs and intestines, while all proteids are excreted by the kidneys. After cleavage of the protein molecules in the alimentary tract through the stages of digestion into albumose, peptones, and amino-acids, the latter are absorbed, and go to build up the tissues in

metabolism. "Any of the proteids beyond the needs of the body for repairs are added as just so much more of nitrogenous waste in the blood, to be excreted by the kidneys. Any organ which is overworked will sooner or later become less efficient in its functional powers." The evil effects of excessive proteid diet are now universally recognized in treatment of renal diseases. We must understand also that the undigested proteids in excess are subject to the action of putrefactive bacteria in the large bowel, and there undergo cleavage, the products of which are not innocent amino acids, but are highly toxic amins, which are detoxicated by the normal liver. When they are absorbed in excessive amounts or if the cells of the liver are unable properly to perform their functions in detoxification, they find their way into the general circulation and exert their toxic influence on the kidneys.

Many clinicians, among whom we mention Bouchard, Metchnikoff, and Eustace, have for years maintained the theory of intestinal putrefaction as a causative factor in cardio-vascular renal diseases. Babcock says, "These changes are met with in those who suffer from intestinal intoxications whether they are conscious of it or not." Solis Cohn states: "I look upon hardening (sclerosis) as the result of infection or intoxication of one or another kind, frequently intoxication with food poison."

We now know that the end-products of metabolism which reach the kidneys as organic and inorganic bodies are excreted through the glomeruli and the tubules into the urine; that the solids of these end-products contain the poisons which the healthy kidney secretes; that in a pathological state the kidneys fail to excrete those poisonous nitrogenous matters in normal amounts, which being retained, cause all the serious manifestations we find in renal disease, classified as Bright's disease. Why, at this juncture of the morbid process is albumin excreted by the glomeruli and hyalin and granular casts are found in the uriniferous tubules, when at the same time, these identical organs fail in the depuration of the blood, whereby the nonprotein nitrogen in the form of urea and other poisons are markedly decreased in the urine? Is it because the renal lesions do not allow the elements of depuration to pass in proper quantity? Or is it a condition of perverted metabolism? In summing up the views of the latest pathologists it would seem that it is a deviation of metabolism from the normal type, which is ulterior to the kidneys, and which occurs in the blood; possibly in distant organs, mainly the liver, where the function of detoxification is at fault. It is a paralysis of function caused by the toxic effects of the poisonous products in the circulation of the kidneys. In the language

of Dieulafoy: "The key to the whole situation is not what passes through the kidneys, but what does not pass. Whether the structural lesions in the kidneys are primary and the functional disturbances secondary, or vice versa, is unknown; the results are the same, and the condition generally ending in uremia with all of its concomitant symptoms."

"We know," says Barker, "that in chronic nephritis the lesions are diffuse and more or less general in the glandular, vascular, and connective tissues." We need not, therefore, absolutely retain the old division parenchymatous and interstitial nephritis. But it is nevertheless true that the lesions may be unequally distributed. As we have said, we find some cases of nephritis in which the interstitial lesions predominate, and in other cases where the parenchymatous changes are most marked. And if we find postmortem large white or small red kidneys, and granular or cystic kidneys, these varieties are due to the rapidity or slowness of the process; to the predominance of the vascular epitheliar or interstitial changes; to the nature of the toxins or poisons; to the virulence of the infective agents; but no matter what is the nature of the lesion, as soon as the process runs its progressive course the result is the same, the destruction of the organ and obliteration of its function with insufficiency of urinary depuration and inevitable uremia.

As the morbid anatomy and clinical symptoms are so well known to all intelligent physicians, I shall not refer to them in detail.

"In differential diagnosis, the presence of albuminuria, hematuria, cylindruria, and oliguria with marked edema, in a patient without cardiac decompensation makes the diagnosis of glomerulo-nephritis certain." In the cardio-vascular type, a persistent polyuria, with low specific gravity with only a trace of albumin and a few casts in urine along with a continuous arterial hypertension and hypertrophy of the left ventricle, with accentuated second sound of heart, connected with dyspnea, the diagnosis of cardio-vascular renal disease is certain. If, in either form, there is not grouped a sufficient number of these frank and characteristic symptoms to make an early diagnosis, then we should resort to the functional renal test. This test is very simple and most reliable. The one of many which should be used is the phthalein test, and consists of introducing intramuscularly 1 cc. of the test solution, after the patient has emptied the bladder. Then at the end of one hour, and again at the end of two hours, each voiding should be saved in separate receptacles. The amount of phenolphthalein in each receptacle is quantitatively determined by means of a colorimeter after hav-

ing alkalized the urine. Normal persons excrete 50 to 60 per cent in the first hour. At the end of the second hour 70 to 90 per cent of the amount should be excreted. When the output is low it is a valuable indication of renal insufficiency. When it is high, it is a sign (though there be marked renal charges) that there is temporarily renal compensation. In impending uremia in either variety, the phthalein test is very low, and the retained nitrogen *greatly increased.*

Notwithstanding that the prognosis in Bright's disease is always grave; in fact, all clinicians are agreed that the disease is incurable, yet if the alert and conscientious physician would apply himself to the study of pathological physiology in renal disorders, and bring to his aid all the late improvements in technique, much of this pessimism which is too one-sided regarding the fatality of this malady would be dispelled. Early diagnosis, then, is the keynote to a more successful treatment. When any of the minor symptoms of Brightism appear the physician should employ all means at his command in detecting beforehand the inevitable oncoming pathological lesions in the cardio-vascular renal system, which consists in frequent examinations of urine, employment of instruments of precision (such as the manometer) in testing the blood pressure, and the use of the functional renal test.

If, then, as Barker contends, the poisons which reach the kidneys consist largely of the end-products of protein metabolism, and these end-products are the nitrogenous wastes which are excreted by the kidneys, we see at once that the effect of diet on the renal function is of the greatest importance. When the kidney is diseased as it is in nephritis as little work as possible should be thrown on it; therefore, effects of the food should be carefully considered, and the dietary so arranged that this important excretory organ shall be compelled to bear as little strain as possible. As the carbohydrates and fats are excreted largely through the lungs, it is only with the proteid diet we should be so much concerned. The food which contains albuminoid substances, such as meats, eggs, and the purins, should be restricted to the lowest amount commensurate with the maintenance of vitality of the tissues of the body. Extractives of meats and soups and all condiments, with certain drugs, as mercury, salicylate, etc., impose extra work on the kidney and are especially injurious to it.

When edema, as in the parenchymatous form, is present, it may be necessary to restrict both water, sodium chloride in the diet. The milk diet is then the all-important one in chronic renal diseases. As it

takes 40 grams of proteids per day to sustain life, this amount is found in 2 liters of milk, which should be the daily amount with increased hydrocarbons and fat to bring the total calories up to 2,500 to 3,000.

This disease is common among men who lead "the strenuous life," the business men, the captains of industry; thus the incidence is large among brokers of Wall Street. Persons of sedentary habits who overeat are particularly prone to this disease. It is often superinduced by hard labor, work in lead mines, and alcoholics are greatly affected with Bright's disease. Hence, we see the treatment resolves itself into hygienic and dietetic, rather than therapeutic management. In a word, it is one of prophylaxis.

IN SUMMATION.

The exact nature of the cause of Bright's disease, which ends in most cases in uremia, is not clear. The old theory that urea is responsible has been given up, as also that uremia is due from ammonium formed from urea. The consensus of opinion now is in favor of a toxic origin of uremia; whether the toxic substances are normal end-products of metabolism or abnormal products formed in disease is unknown. Most probably it is on account of failure of the internal secretion of the kidneys or some other organ, with the retention of the nephrolysins, which not only injure the kidney tissue to which they are specifically antagonistic, but also exert a deleterious effect upon the nerve centers.

In Barker's own words: "A chronic auto-intoxication from the intestine is believed by many to be a cause, with other faults of metabolism, leading to intoxication, and including intoxications depending upon internal secretion, especially of the chromaffin tissue, may be important, etiologically."

While clinicians have often endeavored to harmonize clinical findings with histological lesions of the kidneys, however laudable it may be, neither clinicians nor pathologists have arrived at the solution of the problem. "Our knowledge is increasing, and the time may arrive when antecedent prophecy of pathological histology of the kidney may be made by the clinician, and retrocedent diagnosis of clinical symptoms and disturbances of the renal functions can be made by the pathologist from his examination of the kidney. That time has, however, not yet come. It is, after all, not the business of the clinician to attempt the impossible; he will do well enough if he sees to it that he does not over-

look important symptoms, and that he discovers the deviations from the normal functions which can be made out by methods now at his disposal."

In conclusion let me add: In contrast with the strenuous American life there can be no truer model of health and long life for us to imitate than the simple life led by the Judean shepherds who led their flocks by the "still waters," lay down with them in "green pastures," and ate the unleavened bread and pure oil and drank the "sincere milk" of the flocks. Doubtless King Solomon saw the beneficial effects of this dietetic and hygienic mode of living and proclaimed to all Israel, "Keep thy heart with all diligence, for out of it are the issues of life."

DISCUSSION.

Dr. T. W. Davis: There is no pathological condition that more surely dooms the individual than chronic nephritis. Everything we may do is of little moment when the functionating part of the kidney is gone forever. What should interest us most is not present findings, but what has gone before; in other words, the why of chronic nephritis. Pathologically, we know that a new tissue formation has replaced the functionating part of the organ. We know this has come about by reason of a long-standing congestion, with the usual changes, that is, dilation of blood vessels, cell migration, and the formation of new connective tissue. A pertinent question is, what causes this chronic congestion? In a word, I would say, toxemia. The doctor has said it comes through germ-produced toxins. The majority of diseases are infectious, and the majority of infections are inflammatory. This is forcibly set forth by the termination "itis" in the nomenclature of disease. What interests me most in chronic nephritis centers in the fact that I believe the one great prevalent cause of chronic nephritis to be poisoning from fixed areas of pus germ infection, generally in the head. My conclusion is based on observation, case after case having been traced to this origin. Another reason for my conclusion is that in acute infections a transitory nephritis is common. If the toxemia is continuous from chronic areas, then the continuous congestion results in chronic nephritis. The changed tissue in the kidney dependent on continuous congestion, I believe, is brought about in two ways—first, by irritation of the toxins, second, by weakening of the blood vessel walls, the general result of the toxemia.

Dr. I. W. Faison, Charlotte: This is a subject under discussion that has been quite interesting to me for a long time. The more I study it the more my mind changes. I think, gentlemen, that the time is not far distant when such names as parenchymatous and interstitial nephritis will be left out of the books. You have got to come down closer; it is there, and the name is going to apply where the disease is. My experience both in knowledge and general practice, is that it is not necessary to have a nightmare because you find albumin in the urine. There are people that have albumin in the urine that are good risks for life insurance. There are other things behind that. I have been interested in focal infection, and taking away focal infection has brought about interesting results. Unless a man's throat and nose are examined—absolutely no man would be called examined until you had looked also at his teeth and tonsils. Then you should test the capacity of his kidneys by plans put down and fixed. Men in the country can test the output of the kidneys, and it ought to be done. Phthalein tests are safe and easy. Any man of professional knowledge can do it. The prolonging of life through this treatment is one of the things. The shortening of life has come from that class of people, high living, costly living, being up too late at night, drinking liquor, besides focal infection will cut short life.

Dr. B. K. Hays, Oxford: Will I be recognized in a scientific discussion?

Dr. Laughinghouse: You will be recognized anywhere.

Dr. Hays: Twelve years' experience as resident physician at a southern mineral springs has given me an unusual experience in kidney trouble. I think I am fairly familiar with the literature on the subject, and I simply rise to state some points as a result of personal observation, which I have never seen mentioned in a text-book.

The first thing is that the man in whom you discover kidney trouble does not know and does not suspect that he has kidney trouble. The man who comes to you with a pain in his back and tells you he has kidney trouble certainly has no form of chronic nephritis.

Second, as Dr. Faison said, the presence of albumin, the increase or decrease in albumin, has very little influence on the prognosis. The condition of the case can only be understood in the chronic form by the continuous study of the character and quantity of casts. If the albumin is decreasing and the casts are increasing you may rest assured your patient is growing worse.

Third, the man with kidney trouble, chronic nephritis, who takes life seriously, who worries, is going to die, and that at no distant date. The man with the same pathological findings, who takes life as a joke and continues with his drinks and continues with his imprudent diet keeps right on living. Now, possibly that may require some modification, but the point I wish to make is that worry kills a man with chronic nephritis; at least that is my personal experience. Worry kills him quicker than alcohol or excess of protein diet.

The fourth point is this, as to the class of patients in whom nephritis is most frequently found. I would not say a word against the danger that comes from focal infection, because I have seen a number of people die of Bright's disease following tonsillar trouble. The class most frequently affected with chronic nephritis are men raised on the farm, eating whatever they pleased, who come to town, changing their occupation from farm to a town life and working at a desk. They continue to eat as they did when they lived in the open. When digestive troubles arise they find relief in alcohol, but do not take exercise nor reduce their diet. These are the men who die of Bright's.

Dr. Cyrus Thompson, Jacksonville: I am not arising for the purpose of prolonging the discussion. I am not considering the thing as a sort of molasses candy that needs to be pulled and lapped over and pulled again. The paper and the discussion constitute a very serious matter; and I am going in the flowery springtime to hand this little bit of bouquet to the gentlemen who preceded my friend Stewart, to say they talked so well about the matter, in my judgment, that up until he began to talk I hardly thought it was worth while for me to talk at all.

Dr. H. D. Stewart: I am glad that I put him to thinking.

Dr. Cyrus Thompson: My friend did not put me to thinking, Mr. President; I do that naturally. He simply put me to talking when I had not expected to make a violent break of a confirmed habit of silence. I was unfortunate because I was out eating dinner. I was fortunate in the dinner, but unfortunate in that I did not hear all of Dr. Weaver's paper. The discussion I have heard with profit.

I have some right fixed opinions on some phases of this matter. I have them, perhaps, by reason of my observation through a large part of three score years and a considerable, though minor, fraction. I always vote the prohibition ticket; and still, sir, in my observation in my county, and I have friends whose observation is the same, it is not the man who drinks, though he may drink to drunkenness periodically;

it is not that man who dies in the flower of his prime and brings loss to his family and community. He is not the man. It is the man rather who eats and may never drink; who, as somebody has said, digs his grave with his teeth. Why, I know the old sots in my county; they totter but they are still living at seventy and eighty years, and only a few years ago, sir, I knew two men in my township of Richlands, who had drunk liquor all their lives; they died at ninety-three and ninety-four years of age. And yet Charles D. McIver in North Carolina, a jovial, good liver, sober, earnest and intense, a man with a vision, a man who did as much for North Carolina and its women as any man could have done, a veritable apostle of education, died in his prime. It wasn't whiskey. With less worry, and less meat, and some liquor, the Capitol Square might still lack his monument.

You talk about focal infections. I had three women in my community whose husbands were able to pay me. I looked at their foul teeth; there wasn't a dentist at hand; I pulled their teeth and I haven't had a bit of their money since. There is something in your focal infection. There is not so much in the slaughter of life by drinking as by focal infection and by eating. Whatever the sins of old booze may have been, they are sins of the past. Booze is gone and can sin no more. His past sins I would not condone. But why do you persist in getting up here and talking about liquor in a bone-dry land where nothing but water is? It is time to stop such talk if you want to be interesting. And I say "stop it." Do you not recall the classic maxim, *De mortuis, nil nisi bonum?* Which is to say, if you cannot speak anything but evil about the dead, don't talk about the dead at all.

THE PATHOLOGY OF SYPHILIS.

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No chapter in medicine more than pathology shows the tremendous progress made in the study of syphilis in recent years. Less than twenty years ago, our knowledge of the pathology of the condition was limited to a good deal of speculation and the histology of the definite syphilitic lesions. Many conditions that are now directly known to be syphilitic were then linked with syphilis only because of masterly clinical deductions. By contrasting the arguments then brought forward and those pathology puts at our disposal now, we get an idea of the gap

that was bridged over. Now the spirochete has been demonstrated in and recovered from the central nervous system of the tabetics and paretics, and pathology supplies us with uncontrovertible evidence. We now have, even if the problems that still confront us remain many and complex, a sufficient conception of the general pathology of syphilis, and this general conception is the rationale of our present day treatment.

Syphilis is generally termed a "constitutional infection." It would be more accurate to say that it is a disease resulting from disseminated metastases and multiple separate *foci*. It is not "constitutional" in the sense of the word as applied to gout and diabetes, for instance. The changes that exist in the blood during syphilis are due to the presence of the metastases, and only likely disappear when the morbid *foci* become really extinct. Colonization, with subsequent more or less complete regression and outbursts originating from time to time in spirochetal remnants, is about as accurate a description of the pathological mechanism of syphilis as may be given in a few words.

The spirochete gains entrance into the body through a break in the epidermis. It may be deposited directly into the blood-stream, as in the case of surgeons cutting themselves during an operation, or as a result of blood transfusion, when proper safeguards as to the donor have not been taken. But, this direct blood inoculation is uncommon when compared with the number of cases when spirochetes are deposited in the lymph spaces of the corium of the skin or mucosa. From the inter-epithelial lymph spaces they reach the peri-vascular lymph spaces, where they multiply. The result of this invasion and the reaction of the surrounding tissue is the lesion commonly known as chancre. Naturally the infiltration in time spreads around the site of the inoculation. The microscopical connective tissue changes begin long before the microscopical development of the chancre; in fact they start as soon as inoculation takes place, and they keep progressing during the whole length of the first incubation period.

Let us incidentally remark that mixed infection, which thus alters the gross pathology of chancre, is a very frequent occurrence. The more we know about syphilis, the less frequent pure chancroid seems to become. Many lesions that formerly would have been unhesitatingly classified as chancroidal, now are shown to be syphilitic by the finding of the spirochetes. The diagnosis rule based on gross pathology, namely, that chancre is a new growth, and chancroid an ulcer, does not hold good any longer; microscopically, the chancre may be just a papule, a superficial erosion. What is responsible for these variations is not easy to state definitely, but undoubtedly they result from the

action of one or several of the factors which, as we shall see later, are consistently modifying the anatomical evolution of syphilis, such as the number of spirochetes, possibly their virulence, their strain, and the defensive action of the tissues.

From the point of inoculation, infection spreads forth to all tissues of the body. The propagation takes place first through the lymph stream; once the lymph glands have been passed, the whole lymph stream is infected, and of course the blood stream. Generally speaking, the spirochete is a lymph organism, but the first generalization takes place through the blood stream. This also takes place very early, long before the second outburst, which was formerly considered as heralding it in.

Hoffman found spirochetes in the blood during the development of the chancre. In a case of Welhselmann the patient committed suicide when the diagnosis of chancre was made by a dark ground illumination examination, and the spirochete was already present in the cerebrospinal fluid, which is supposed to be the least accessible part of the body for the spirochete.

The blood stream carries the spirochete to all the tissues of the body it reaches directly; that is, to every tissue and every normal fluid. But, it does not follow that active lesions will result in all organs. The invasion may be likened to the first big rush of an army which sweeps everything in its advance, but has not had time to consolidate its positions.

The spirochete has now reached the maximum extent of its domain. From now on, it will meet with increased resistance from the defensive processes of the body, and probably also from treatment. The result of the conflict waged in the body between the invading host and the organic defense depends of course on the respective strength of the two elements. If the resistance is sufficient and aided by energetic and early treatment, complete eradication of the spirochete is possible.

Consideration of the virulence and the affinities of the spirochete brings up the question of strains. By strain is understood a "member of the same species possessing some certain minor characteristics peculiar to itself." There are many clinical reasons to admit the existence of spirochetal strains. Thus, for instance, tabes is unknown in countries where skin and visceral syphilis is very prevalent. Practically speaking, the chances are that there are several strains of spirochete. But despite this variety, the fundamental, histological lesion of syphilis is essentially the same, whenever and wherever found.

After this very brief resumé of the general conception of syphilis, and of the general histology of the disease, we have to consider the various lesions of the different organs. From what has been said, it is plain that the vascular system is the one most affected in lues; even more—the one through which all others become affected. The part played by syphilis in the etiology of cardio-vascular disease is becoming more and more prominent every day. The statistics of insurance companies show that the mortality from cardio-vascular disease is more than double in syphilitics than in non-syphilitics.

It goes without saying that all of the vascular system may be affected by the spirochetes; however, it is claimed that the arteries are particularly liable to damage. In fact, syphilitic arteritis has received a great deal of attention while syphilitic conditions of the veins are hardly mentioned. It may be that the veins are not as frequently affected as the arteries on account of the lesser strain they are normally submitted to, but the difference may be only apparent, and due to the fact that diseases of the arteries compel more clinical attention than a similar condition in the veins.

The heart is also frequently involved in syphilis. All tissues may be affected, either by hyperplastic infiltration, or gummatous formation. Thus pathology teaches us the enormous importance of syphilis in the development of cardio-vascular disease. No diagnosis of the latter is complete or treatment is rationally grounded until the presence or absence of syphilis has been ascertained.

Fully as frequent and as important is syphilitic involvement of the nervous system. The vascular system is so often affected, because at all times it bears the brunt of the attack of the infection; the nervous system is so often affected owing to its liability to sensitization, and because of an anatomical disposition that greatly favors the maintenance of a spirochetal focus all along the central nervous organs.

Next in frequency and importance are syphilitic lesions of the digestive tract. Many of these lesions are evidently syphilitic and have been recognized as such for a long time, but many others are of a mooted nature, and at first sight might not look specific. However, it seems that pathology bids fair to repeat along the digestive tract what it has done in diseases of the vascular and nervous system.

The liver is frequently attacked by syphilis. It may even be the seat of severe lesions during the secondary period. The catarrhal lesions, analagous to those of the skin, which not infrequently cause jaundice, may lead to severe parenchymatous destruction, even to acute yellow

atrophy. It is natural that the organs of elimination should be involved in syphilis. The kidney is often affected in later, as well as in early stages.

We now have to consider syphilis of the locomotor organs, particularly of the bones. These rank among the best known and most characteristic syphilitic conditions. Syphilis of the bones, therefore, is very painful and destructive; it often leads to disfiguring and telltale deformities.

In the respiratory tract syphilis is not very common, the lesions created in the upper air passages being better known than those of the lung. Eye lesions are also common in hereditary syphilis; in acquired syphilis, besides a few cases of keratitis, we chiefly have to be concerned with iritis.

There now remains a group of lesions which bid fair to be very interesting, but about which our knowledge is still sadly deficient—I refer to syphilis of the internal secretion glands, pancreas, thyroid, suprarenal. How great a part syphilis plays in the production of metabolic disorders, due to morbid changes in these glands, just begins to be dimly foreseen. After this, of necessity, very cursory summary of the pathology of syphilis, one cannot fail to be impressed by the tremendous expansion its domain has taken in all directions since we have had such adequate laboratories. A few years ago a great many said Fournier was far too radical, and that he answered *syphilis* whatever might be the nature of the case shown to him. And now we find that Fournier was right whenever he said *syphilis*, and that if he erred, it was because he did not say it often enough.

Bearing all those things in mind, and remembering the ubiquity of the spirochete, will enable the practitioner to score a therapeutic triumph in many a baffling case. Sir William Osler has appropriately said: "Know syphilis in all its manifestations and relations, and all other things clinical shall be added unto you."

GASTRIC SYPHILIS.

W. O. Nisbet, M.D., Charlotte, N. C.

It is admitted by all observers that syphilis of the stomach is more common than it was thought to be a decade ago. Prior to 1909 seventy authentic cases had been reported; from 1909 to 1915 no less than 25 additional cases were placed on record in the United States. One of

the earliest papers of this subject in this country was written by Einhorn, of New York City, in 1900. The Wassermann test for syphilis has been one of the chief aids in establishing syphilis of the stomach on a definite clinical basis.

FREQUENCY.

We have not as yet sufficient statistics to establish the frequency of gastric syphilis. Some information on this point is given by Frank Smithies, of Chicago, who found some 26 cases of gastric syphilis in 7,545 patients affected with all types of dyspepsia. Of this 7,545 patients 1,603 were demonstrated to have pathological lesions in the stomach or duodenum, and 1.6 per cent. of these lesions were syphilitic; 15.3 per cent. malignant; 18.7 per cent. gastric ulcer; 39 per cent. duodenal ulcer, and 24.8 per cent. were achylias or gastritis.

PATHOLOGY.

It is a generally accepted fact that the infection from which gastric syphilis follows may be either congenital or acquired, and that it may occur along with syphilis in other parts of the body or as a purely local manifestation of the disease. Chiari claims that ulcerative and gummatous lesions of the stomach occur very infrequently in general syphilis, but that interstitial hemorrhages and other vascular disturbances are comparatively frequent.

Studies of syphilitic lesions of the stomach have been published by Chiari, Weichselbaum, Neumann, Flexner, Einhorn, Morgan, Downes, and Le Wald, and the findings have been stated by Smithies as follows:

Apparently the syphilitic virus first manifests itself as a dense, round cell infiltration of the loose, areolar tissue of the stomach wall. There is frequently an associated endarteritis. When the disease is once established, it appears to progress in four rather characteristic fashions: (1) by diffuse infiltration, confined to the areolar tissue and causing thickening and stiffening of the gastric wall; (2) locally to the mucosa and submucosa in the form of dense lymphocytes which may end as typical miliary gummas or coalesce, necrose and slough to form ragged ulcers, not frequently multiple; (3) in the form of single or multiple inflammatory nodules composed of exuberant connective tissue and lymphocytes; these may involve the entire stomach wall, producing extensive tumors (ulcerating or nonulcerating), stenoses and malformation in contour, and (4) subperitoneally and peritoneally, resulting in perigastritis associated with thickening of the wall of the viscus and

dense perigastric adhesions. As a consequence of these pathologic types the clinical manifestations of the malady are varied. Grossly they may be summarized as those associated with chronic gastritis, ulceration (with or without stenosis), gastric tumor (with or without obstruction), and perigastritis, often with involvement of adjacent viscera.

SYMPTOMS.

The symptoms of syphilis of the stomach are not distinctive from those which are common to chronic gastritis, simple ulcer of the stomach and gastric carcinoma. Therefore, we find epigastric distress, associated with pain and tenderness, nausea and vomiting. The gastric distress is described by patients as gnawing, burning, aching, or colicky, and is of variable intensity and duration. The pain in some degree is present in the majority of cases and is most severe when the stomach is empty. In the earlier stage, especially in those cases developing pyloric obstruction, it is more constant and aggravated. Nausea and vomiting are seldom absent, and may appear shortly after eating or two or three hours later, and the emptying of the stomach does not always give relief from nausea. The appetite varies. In some it is good until late in the disease; in others it is impaired almost from the beginning; others still have alternating periods of good and poor appetite.

LOSS OF WEIGHT.

The weight loss varies according to the clinical type. Cases in which vomiting and loss of appetite are pronounced, emaciate more rapidly than those in which these symptoms are less manifest. Weight loss is nearly always present and varies from 10 to 30 pounds.

The blood picture is that in secondary anemia and assumes a severe type in advanced cases.

TUMOR.

Palpable, resistant, epigastric nodules or ridges are found in a large per cent. of cases of gastric lues, but it is impossible to distinguish them from a malignant growth.

LABORATORY FINDINGS.

Gastric acidity. The findings of the various observers on this feature do not agree. Smithies found the acid factors normal or above in but two of his 26 cases, while Einhorn reports sub-acidity in nearly all of his cases. In my six cases the acidity was above normal in all except one.

BLOOD.

Smithies reports altered blood found in stomach contents in 26 per cent. of his cases; Einhorn found blood present in the gastric contents in five of seven cases (reported in 1915). Blood was found in four of my six cases.

RONTGENOGRAPHIC EXAMINATION.

We cannot make a diagnosis from radiographic and fluoroscopic findings alone, but when considered in connection with other signs they are of decided value. A fairly typical picture is that showing a dumb-bell deformity usually invoving the middle portion of stomach or the first part of the pylorus. The next most common plate is that showing marked narrowing deformity of the pyloric area. This infiltration may give a rigid patulous tube with slight retention, or on the other hand, there may be obstructive infiltration such as is often seen in chronic ulcer.

THE WASSERMANN REACTION.

The Wassermann test should be made in all cases in which gastric syphilis is suspected. If positive, it helps to establish the diagnosis; if negative, it does conclusively decide against lues. Furthermore, the Wassermann reaction may be positive and yet the stomach may be non-syphilitic.

DIAGNOSIS.

A positive diagnosis of gastric syphilis from gastric ulcer and carcinoma cannot be made from the local symptoms and the ordinary test of the gastric juice. The symptoms are very similar. We are therefore compelled in making this differential diagnosis to rely on the patient's history as to syphilis, to look carefully for lesions on the body, to make the Wassermann test, and get the X-Ray findings. In those cases in which positive evidence is lacking from these, and such cases are not uncommon, we can apply the therapeutic tests.

Chase suggests the following working rules:

1. There should be the statement by the patient that he has had syphilis; and there must be positive Wassermann reaction.
2. There must be evidence of syphilis elsewhere in the body.
3. There should be demonstrable lesions of the stomach as shown by the Röntgen ray.
4. There should be therapeutic improvement.

TREATMENT.

The nausea, vomiting, and pain are treated by the same remedies as are used in simple ulcerative processes of the stomach, but these are only palliative—alkalis and belladonna to lessen the pain and acid excess, a simple ulcer diet along with iron and arsenic in case of marked anemia.

Curative results are obtained by the intravenous injection of salvarsan, in conjunction with a thorough course of mercury, given by fumigation, inunction, or hypodermatically and of the iodides.

Under this specific treatment many cases show prompt improvement; in others the response is slow; in some no permanent relief is obtained.

I would like to especially call your attention to the close resemblance in symptoms between gastric gummata and gastric carcinoma, and to suggest that you have the Wassermann test made when there is a suspicion of syphilis.

Surgical treatment is at times indicated to relieve complications. Gastro-enterostomy is usually done to secure gastric drainage and prolong patient's life until results can be had from the medical regime.

CASE REPORT.

Case 1. April, 1913, Miss O. L., age 24. No history of initial lesion nor history or signs of secondary or tertiary manifestations. For six years has been troubled with gastric acidity and recurrent periods of pain and vomiting. Has lost 20 pounds in weight in past twelve months. Has vomited blood on several occasions. Hb., 65; red cells, 4,100,000; white cells, 8,700. Free CHl, 30; total acidity, 70; occult blood, positive. Failed to improve under ulcer treatment, and X-ray examination was made and revealed marked hourglass deformity of the stomach. Later a laparotomy disclosed dense epigastric adhesions, so extensive that gastro-enterostomy was not possible. Finally salvarsan was given and followed with mercury and iodide with prompt response, the patient gaining 30 pounds in 12 months. A recent radiograph showed marked lessening of the gastric deformity.

Case 2. November, 1915, R. D., male, age 14, weight 44. No history of initial lesion, secondary or tertiary symptoms, save possibly a so-called prolonged attack of typhoid fever when three years old. Has had painful digestion with more or less nausea and vomiting for the past four years; on account of pain has eaten very scantily and shows unusual emaciation. Hb. 60; red cells, 3,800,000; whites, 7,200. Free HCl, 28; total acidity, 62; benzidin test for blood, positive. Radiographs disclosed marked deformity of the middle portion of the stomach. Wassermann test, positive. Under salvarsan, mercury, and iodides has gradually gained 8 pounds, and digestion is more comfortable.

Case 3. January, 1915, A. G., male, age 38. Genital lesion 18 years ago, but has had no secondary or tertiary symptoms. In 1912 suffered with gnawing pains in epigastrium, with occasional vomiting; was treated for gastric

ulcer, and had fair digestion until six months ago with more persistent vomiting, and has since lost 35 pounds in weight. Has palpable nodule in epigastrium, positive Wassermann stenosis. Deformity of pylorus. Has had 3 injections of salvarsan and is getting iodide of mercury also, and so far improvement is very slight and gastro-enterostomy will in all probability be necessary in order to secure proper stomach drainage. This may prove to be carcinoma of the stomach in syphilitic individual.

Case 4. October, 1916, male, age 33. Denied initial sore. Drank considerable whiskey, but health was good until had supposed attack of continued malarial fever in August, 1916, and the year preceding. When seen was running slight daily temperature and suffering from headache, nausea, vomiting, and pain; vomitus at times contained blood. Hb., red and white cells normal and no malarial parasites present; liver and spleen enlarged. After two weeks nonspecific treatment patient developed typical symptoms of cerebral gumma. Wassermann was done and found positive, and the brain and gastric symptoms promptly cleared up under anti-syphilitic treatment.

Case 5. February, 1917, D. P. R., male, age 25. Genital lesion five years ago; no secondary or tertiary manifestations. Gnawing sensation in stomach two to three hours after meals. Periodical attacks nausea, vomiting, and headaches. Ten pounds weight loss in past two months. Blood: Hb., reds and whites normal. Wassermann, double plus. Radiographs show a small contracted stomach with no filling defects. Free HCl, 70. Total acidity, 100. Benzidin test, negative. Patient is feeling better under anti-syphilitic treatment.

Case 6. March, 1917, C. E. S. (col.), male, age 32. Denied initial lesion. No secondary or tertiary manifestation. Marked emaciation. Weight loss, 35 pounds. Free HCl, normal. Occult blood not present. Marked nausea, vomiting, and pain in epigastrium. Palpable nodular mass in mid-epigastrium. Wassermann, negative, both before and after salvarsan injection. Marked reaction to salvarsan. Ten days later patient more comfortable. Result of therapeutic test remains to be determined. X-ray pictures showed marked constriction of stomach at its middle portion. Pylorus patulous. Capacity of stomach diminished one-third.

PARESIS.

Dr. John Quincy Myers, Tranquil Park Sanitarium, Charlotte, N. C.

Paresis or general paralysis of the insane is now recognized as a syphilitic disease, especially since the spirocheta pallida has been found in the brains of paretics by Noguchi and Moore, Foerster and Wile.

Collins says that in general paralysis the destructive action of the causative organism "is expended largely on the parenchyma or ganglion cells of the cortex of the brain. Any part of the nervous system may, however, be subjet to its ravages, but the symptoms of the disease are always finally and conspicuously cerebral."

Clark says: "In paresis, there is a primary parenchymatous encephalitis with secondary changes in the meninges, a perivascular cell infiltration with plasma cells and leucocytes—a proliferation of neuroglia cells and a diminution in the number of pryamidal cells of the cortex, and later atrophic changes in the cells of the basal ganglia-medulla-spinal cord and cerebellum. There is a real atrophy of the brain cortex which accounts for the permanence and severity of the symptoms and the comparative ineffectiveness of even the most approved method of treatment."

In the diagnosis of paresis, the most important early symptoms are:

1. Physical: Loss of pupil's reaction to light and change in outline of pupil, tremor of lips, tongue and hands, alteration in tendon jerks, slight parasthesias, slurring of words in speech, disturbed coördination in poseful movement, especially in writing.

2. Mental: Loss of memory, nervousness, and alteration of personality or "change in disposition."

A Wasserman test of the blood and of the spinal fluid, and other tests of the spinal fluid are necessary in diagnosis.

The typical reactions in paresis are:

Wasserman in blood, positive.

Wasserman in cerebrospinal fluid, positive.

Positive in about 85 per cent. with 0.2 cc. fluid.

Positive in 100 per cent. with larger quantities of fluid.

Globulin reaction in spinal fluid positive (95 to 100 per cent.)

Lymphocytosis of spinal fluid.

Gold reaction test of spinal fluid, typical paretic curve.

Remissions are usual in paresis, sepecially in the early stages.

Paresis has been regarded as an incurable disease, and is still so regarded in most cases, unless taken in the very early stages.

Collins says: "It is a fatal disease. Once it is fully developed it is subject neither to amelioration nor to interruption. Early and vigorous treatment of syphilis before the organisms have made their onslaught on the parenchyma of the central nervous system has wrought a change in the clinical display of the disease. The hope is justifiable with our enhanced capacity to deal with syphilis, based on a profound knowledge of the principles or laws which govern the life history of the spirochetes and their susceptibility to destruction by arsenic, that finally we may be able, first, to prevent general paresis, and failing in this, to cure it. Its prevention is synonymous with the prevention and adequate treatment of syphilis. . . . There is no encouragement from experience, recent or remote, to justify the hope that we shall be able to cure general

paresis until such time when we shall recognize the disease much earlier than we do now. We must thwart the preparations that the spirochetes make in the nervous system soon after infection, and we must annihilate them in their early skirmishes."

Swift says: "The best treatment of brain gummata, tabes and paresis will always be their prevention. . . . It goes without saying that the best preventive of syphilis of the central nervous system is the prophylaxis of syphilis, but this problem is far from solved. Next in importance is the proper treatment of syphilis in the early stages. It should be emphasized that no case should be released from treatment until the cerebrospinal fluid has been shown to be normal, in so far as pleocytosis and Wasserman reaction are concerned." The form of treatment at present advocated as most hopeful in paresis is the intraspinal injection of salvarsanized serum.

The two technics most used are those of Swift and Ellis, and Ogilvie.

The Swift-Ellis technic as described in their article in *Archives of Internal Medicine*, 1913, is as follows: "One hour after the treatment of the intravenous injection of salvarsan 40 cc. of blood is withdrawn directly into bottle-shaped centrifuge tubes, and allowed to coagulate, after which it is centrifugalized. The following day 12 cc. of serum is pipetted off and diluted with 18 cc. of normal saline. This 40 per cent. serum is then heated at 56° C. for one-half hour. After lumbar puncture the cerebrospinal fluid is withdrawn until the pressure is reduced to 30 mm. cerebrospinal fluid pressure. The barrel of a 20 cc. Luer syringe (which has a capacity of about 30 cc.) is connected with the needle by means of a rubber tube about 40 cm. long. The tubing is then allowed to fill with cerebrospinal fluid so that no air will be injected. The serum is then poured into the syringe and allowed to flow slowly into the subarachnoid space by means of gravity. At times it is necessary to insert the plunger of the syringe to inject the last 5 cc. of fluid. It is important that the larger part of the serum should be injected by gravity, and if the rubber tubing is not more than 40 cm. long the pressure cannot be higher than 400 mm. Usually the serum flows in easily under even a lower pressure."

Slight modifications of this technic have been made. Some authorities withdraw the blood in less than an hour (30 to 45 minutes) after the initial dose of salvarsan. In some cases the strength of the serum used is increased to 50 or 60 per cent. instead of 40 per cent. Swift and Ellis say this increase should be made when patients do not show the usual reactions.

Dr. Ogilvie has designed another method for the preparation of the salvanized serum *in vitro*, by which the exact dose of salvarsan used may be measured. This method is as follows:

About 50 cc. of blood is withdrawn and centrifuged. When the serum is perfectly clear, 15 cc. is taken and the amount of salvarsan to be given added. The salvarsan is prepared as for intravenous treatment in such strength that each 40 cc. of the solution will contain 0.1 gm. of the drug, and each cubic centimeter 2.5 mg. Although Ogilvie has used doses up to 4.0 mg. of salvarsan, he prefers smaller doses—not over 1.0 mg. For repeated use, he says, "0.25 mg. is the safest and most effectual dose to employ." Larger doses are apt to produce too severe reactions. The blood serum and salvarsan solution should be at the same temperature when the two are mixed. "The serum is then gently agitated to thoroughly mix the two and is placed in a thermostat at 37° C. for forty-five minutes. From this it is placed in a thermostat at 56° C. for thirty minutes." After making the spinal puncture, the serum is introduced from the syringe by gravity.

Results with this form of treatment have not been so hopeful in paresis as in either cerebrospinal syphilis or tabes. Marked improvement has been noted in some paretics, especially in the earlier stages of the disease, and the method is regarded by many as deserving more extended trial in paresis.

In regard to the intraspinal treatment Riggs and Hammer say: "We believe that, by intraspinal medication, remissions are greatly increased in frequency; that in early paresis, marked improvement may occur with a possible arrest of symptoms." To be effective, they say, treatment must be early and persistent. They approve both the Swift and Ellis technic, which they have used chiefly, also Ogilvie's, and speak of Wardner's cerebral puncture, which they have not tried, as perhaps the best method in cases of paresis of long standing.

Fordyce says of intraspinal treatment in paresis: "While a promise of cure cannot be held out in cases which are clinically developed, the treatment is of value in inducing remissions, making the patients socially possible and amenable to home care, and in a few cases restoring them, partially at least, to economic efficiency. If the diagnosis of paresis can be established through the colloidal gold reaction when the infection is in its incipiency, we may be justified perhaps in speaking of a cure."

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PRESENTING SYMPTOMS IN 300 CONSECUTIVE CASES OF SYPHILIS.

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Whether a man be a surgeon, ophthalmologist, dermatologist, internist, neurologist, gastroenterologist or general practitioner, the subject of syphilis is of paramount interest and importance. Of all the diseases to which man is heir it takes the most diverse and varied forms, and it is by no means uncommon. It has been estimated that between 10 and 20 per cent. of the adult male population has the disease. It is claimed that there are 200,000 syphilitics in New York City alone. It causes 42 per cent. of all miscarriages, and 75 per cent. of the children of syphilitic parents die in infancy. Those that survive in many cases would be better dead.

We hope, in presenting this paper, to show to some extent the great variety of ways in which it manifests itself, and thus to influence the profession to take cognizance of this great plague and to remember that it may have an important bearing on many an obscure case. There was some excuse for the older practitioners not recognizing the disease since, in many cases, especially in women, its beginning may be obscure. The primary lesion may not be noticed, and the secondary may be either slight or thought to be some other malady. Today we can hide behind no such excuse with the Wassermann reaction at our very hand. We do not pretend to say that this test is absolutely accurate and infallible. Nothing man-made is perfect. But in a vast majority of cases it gives us the information we need. We find many modifications of the original technique, but believe that the original test is still recognized as the best, with Noguchi's modification giving it a close second. We have tried out the Hecht-Weinberg modification and do not find that it has any advantages over a carefully done Wassermann.

The bichloride test as recently devised has not been accepted as serviceable, and if done at all is used by only a very few.

The luetin test we have used to a considerable extent and find that it is of value in certain tertiary forms in which the Wassermann is negative. The gold chloride test combined with a careful examination of the spinal fluid is of inestimable value in spinal and cerebral lues.

The microscopical examination for the spirocheta pallida, either by the dark field or by the staining method, is of the greatest value, although it is true that in very many of the cases with a primary lesion it is almost impossible to demonstrate the organism since the patient has often treated the sore for several weeks, and in many cases it has been cauterized several times either by the doctor or some knowing friend. It is undoubtedly safest "to consider every venereal sore as potentially a chanchre"—even if it does not present the distinguishing characteristics—and to withhold a definite diagnosis until it has been proven negative by watchful waiting and several Wassermann tests.

In this series we have chosen our last three hundred cases since our records before these are not as complete as we would wish to have them.

Wassermann reaction has been done on all the cases and the other tests in many of them and, omitting the primary form, practically all have shown a positive blood or spinal fluid. In a large number of the primary lesions the organism was found. In cases diagnosed clinically with negative Wasserman and when no organism was discovered, the diagnosis was confirmed by the therapeutic test.

The following chart shows in tabulated form the presenting symptoms for which the patient asked relief. In not a few cases there were several prominent symptoms, but we have classified the patient under the one of which he complained:

Primary		55
Secondary		42
Ulcers		54
Throat	26	
Leg	19	
Breast	3	
Arm	1	
Cervix Uteri	1	
Neck	1	
Nose	1	
Toe	1	
Finger	1	
Clavicle	1	
Condylomata		4
Rectum	2	
Vagina	2	
Mucous Patch		26
Mouth, Nose Throat.		
General Glandular		16
Gastro-intestinal		11
Pain		22
Head	10	
Side and shoulder	7	
Abdomen	1	
Arm	1	
Hip	1	
Leg	2	
Eye		7
Ear		2
Deafness	1	
Roaring	1	
Nervous		33
General	16	
Paresis	8	
Tabes	4	
Cerebral	3	
Facial	2	
Gumma		16
Testicle	7	
Penis	4	
Bladder	1	
Kidney	1	
Humerus	1	
Jaw	1	
Epididmis	1	
Miscellaneous		13
Nephritis	3	
Diabetes	2	
Liver	2	
Heart	2	
Anal Fistula	1	
Pernicious Anemia	1	
Swollen Face	1	
Dizziness	1	
Total		300

Of the fifty-five cases with a primary lesion all except three were on the genitalia. There were two on the lip and one, in the case of a doctor, on the finger. It is surprising that we should not have a much larger number showing a primary lesion, but since quite a number of them were referred and because few physicians are fitted to do the dark field examination, we would expect many of them not to be referred until some further symptom than the primary sore was evident, and this likewise accounts for the rather large number of secondary cases that we have in this series. Under the division marked secondary we have placed only those showing the rash and those with mucous patches, condylomata, etc., under separate headings.

Under the head of ulcer there were fifty-four cases. It is difficult to draw a sharp line of division between mucous patches and ulcers. How-

ever, we are calling ulcers those lesions in which the necrosis seemed to involve a deeper layer than the mucous membrane. It is rather striking that twenty-six, or practically half of these ulcers, were located in the throat, and that nineteen were found on the leg. The remaining six were sufficiently well distributed to show that no portion of the body is exempt.

There were other cases than these three mentioned that had condylomata, but these were the only three that came in complaining of this symptom as the chief trouble.

Although the mucous patch is a very constant and characteristic lesion of late secondary syphilis, of the seventy-one cases in this series that were secondary, only twenty-five came in complaining of the mucous patch, and all of these were in the mouth, nose, or throat.

By placing a special heading, "General Glandular Enlargement," we do not mean that these sixteen were the only cases that showed this condition, but these were the ones that came in complaining solely of this. Some of them had only very slight enlargement of the lymph nodes, while in others the enlargement was very marked. It is true that glandular enlargement is found to some extent in practically all cases of lues.

We do not pretend to say with reference to the next two divisions, viz: gastro-intestinal symptoms and pain, as well as certain other conditions, that lues was the only cause, but when the Wasserman was positive, and when the symptoms were relieved by salvarsan and mercury we feel justified in attributing the trouble to syphilis. The eleven gastro-intestinal cases presented very diverse symptoms, varying from acute gastritis and colitis to what the patient would call "indigestion" or "stomach trouble."

The twenty-two cases of pain were fairly well distributed over the body and we were able to find no other cause for it than lues, and as specific treatment cleared it up in every case we felt justified in giving lues as the etiology. It is hard to say exactly to what direct cause the pain in these cases is due. It is very striking that practically half of them are located in the head. Some would undoubtedly come under the classification of toxic, others hypertension, and in a few cases the pain was so intense that one naturally thought of cerebral gumma. This symptom of headache being present in 3 1-3 per cent. of cases suggests that lues might play an important part in the etiology of more of our chronic headaches.

Seven, or a little over 2 per cent., came in with eye symptoms. Iritis and interstitial keratitis are the chief troubles for which those patients were referred. Two cases of keratitis were congenital.

Of the thirty-three nervous cases sixteen are classed as general nervousness. This is, of course, a vague sort of symptom and undoubtedly was in a few instances syphilophobia. Others would say, "so nervous can't work," or "can't sleep," or some such expression, and this would be the only symptom that could be elicited. Two cases came with facial paralysis, three with marked cerebral symptoms, four with tabes, and eight with paresis.

Our series shows only sixteen with gumma. If many of the other cases had been investigated more fully or had come to autopsy more gummata would undoubtedly have been found. Probably some of the gastric symptoms were due to gumma, and it is very likely that at least one of the liver cases would have shown gumma of this organ.

Under the heading of miscellaneous we find a few interesting cases. Of the three cases of nephritis there is a bare possibility that one of them had the trouble brought on by excessive mercury therapy before coming to us, and in other two cases the trouble seemed to be purely of luetic origin. We have found but one other case of pernicious anemia in literature that had lues given as the cause.

Finally, we would like to emphasize what is already well known, viz: the great variety of the presenting symptoms, and to call attention to the fact that even in this series some of the very important and often recurring types are absent—for example, the vascular cases. We think these are absent because the subjective symptoms are either vague in themselves or they are referred to other organs, as headaches, dizziness, etc. In two or three cases aneurism was found. In a good many arterio-sclerosis was present, but they were found only upon examination, and of course were not remembered by the patient.

DISCUSSION.

Dr. J. S. Mitchener, Edenton: In this paper I have been very much interested. Dr. Lafferty has shown us that we must be on the alert. We general practitioners, especially in the smaller towns and rural districts, are very much handicapped because we have no means of laboratory diagnosis in the majority of our cases. Thus we should be familiar with the clinical aspects, for syphilis presents itself in so many ways. One of the Baltimore clinics bears out the importance

of the headache symptom in its reports. When we can rule out the common causes as hypertension, nephritis, vascular sclerosis, intestinal stasis, eyes, etc., a Wassermann is in order.

A very interesting case was seen by me February, 1916. During an epidemic of influenza I was called to see a negro girl, aged 19, who had been under the care of two others for about four weeks. Her complaint was "rheumatism." The F. H. and P. H. were negative. The P. I. began about four weeks previously with a general malaise, especially aching of the joints and bones, and a febrile reaction. There had been no cough, sore throat or skin lesions. P. E. The only findings of importance were evidence of much loss of weight and slight enlargement of the posterior cervical and epitrochlear lymph glands. Tongue heavily coated. Temperature 100, pulse 95. I knew she had been given adequate treatment and had had sufficient time to be better were she suffering from influenza. The coated tongue made me prescribe Hydrag. Chlor. Mite., and as I found a normal temperature the next morning I was sure that lack of bowel movement was the cause. My third visit was made in the afternoon, as was the first. The temperature and pulse in each case was practically the same. This made me fear tuberculosis, even with a negative history and physical examination. Reference to Osler found that the temperature curve of the fever of invasion in lues often made one suspect a tubercular infection. This, together with the findings mentioned, encouraged me to start a specific treatment. This is a therapeutic diagnosis, but as she quickly responded to treatment I feel justified.

Syphilis is a waste basket for my obscure cases. These I consider syphilitic until proven otherwise. The majority will wear the cap, for lues respects no age, sex, or social status.

As a health officer this paper appeals to me from that viewpoint. Each year the Board of Health spends much time and money on prevention of tuberculosis while we are indifferent to syphilis, which is often a gift to many innocent children. Were we to really know the number of syphilitics living today and the number of deaths it contributed to we would be amazed! The institutions for the insane echo what I say. We should wage a war against this curse, and with this in view I do not think our Laboratory of Hygiene is complete until it has a department for the diagnosis of syphilis. Personally I am of the opinion that I have seen more sufferers from syphilis than from tuberculosis.

Dr. Robert H. Lafferty, Charlotte: I was very glad Dr. Mitchener emphasized the importance of the health department taking some action on this disease. Especially among our negroes is it prevalent, and just there is where we doctors have a tremendous responsibility. Here is where a puzzle arises every day. A good many colored people come into our clinic for free treatment. A man's cook or nurse shows a positive Wassermann. What are we going to do? Turn off the cook? The next one may be just as bad. So you see where we have the puzzle. It is exceedingly important that the State should have facilities for doing the Wassermann, and probably what is more important, for treatment. The other day I ran over the number of Wassermanns we have done for the last two years. We have done a total of 1,012. I found there were 634 that were negative, 378 positive. That, of course, includes the Wassermann done on the patients after treatment, but a routine Wassermann would give us some more definite insight into our cases. If we had the facilities in the State for doing the Wassermann tests we could make better diagnoses.

SOME PHASES OF THE TREATMENT OF POLIOMYELITIS.

Robert A. Moore, M.D., Charlotte.

I desire to invite attention to what I consider some of the more important phases of the treatment of poliomyelitis. It would be impossible to consider the treatment of this disease in its entire scope, as the treatment extends over a long period of years and occupies a unique place in surgery by virtue of the various groups of muscles paralyzed. Each muscle, or group of muscles, and each deformity requires an individual surgical or mechanical treatment; therefore it is impossible to outline a definite course of treatment after the stage of congestion has subsided.

Before considering the treatment, I wish to recall to your mind briefly the pathology of the disease. Acute poliomyelitis is a general infection characterized especially by its attack on the cerebro-spinal axis. The pathology is essentially a hemorrhagic myelitis, accompanied by mild meningitis of rather indefinite extension. The changes in the cord consist for the most part of punctate hemorrhages of the anterior horn, though not limited to this region. There is also an extensive perivascular infiltration with congestion of the posterior root ganglia.

Perivascular infiltration causes a narrowing of many of the terminal arteries supplying the motor cells of the cord, so that anemic changes, even to the point of necrosis, may occur in them. In addition to this, the posterior root ganglia are congested, hemorrhagic and inflamed. From this stage the process, in cases which do not die, consists in an absorption of the infiltration about the vessels, this allowing the blood supply to return to the anemic cells with a gradual return to the normal of the cells, which have not been completely destroyed, since by the absorption of the infiltration, the normal state will supervene, in which necrosis has not already occurred.

At this stage, following the acute process, the greatest improvement occurs. This is called the stage of "spontaneous recovery."

The disease is divided into the acute, convalescent and chronic stages; the acute lasting until tenderness has disappeared, or about six to eight weeks. General measures as applied to any acute infectious disease should be carried out in the beginning. If the disease is recognized before the paralysis has spent its course, the injection of the serum of the blood removed from a patient who has recently had an attack of poliomyelitis is of value in checking the extent of the paralysis. The injection should be made into the subdural space of the cord, and then intravenously. Amosse (a) and Chesney (b) reporting twenty-six cases treated by this method at the Rockefeller Institute, their conclusions are that it is of value in checking paralysis, especially if the vital centers are not affected early.

From the pathology it would seem that the physiological requirements of this stage would be rest, in order that nature may be given an opportunity to repair the damage so far as possible by absorption, as anything which irritates the peripheral ends of tender nerves and produces pain, such as electricity, massage and attempted movements, must necessarily be injurious to hemorrhagic and anemic nerve centers; the tenderness indicating that there is still active process in the cord. Until this has subsided, the patient must be let alone. Any active treatment, not only is injurious to the inflamed nerve cells, but it irritates the patient and interferes with general health.

I wish to emphasize that the orthopedic treatment begins with the onset of paralysis. With the application of light plaster of paris splints to the limbs, especially the lower extremities, they are protected while handling, thus doing away with irritation and pain to the child, but especially important is the prevention of troublesome deformity and removing the strain from weak and poorly nourished muscles.

The most common deformity to occur is "toe-drop," which is due to a paralysis or weakness of the anterior tibial group of muscles. This is to be combated by simply a posterior angular splint or cast, holding the foot at right angles to the leg. It is always advisable to have the leg extended on the knee, since the foot at right angles causes a possibility of short calf muscle being produced. This is due to the fact that the gastrocnemius is attached to the femur above, being joined with the soleus and joining the tendon achilles below, which is inserted into the os calcis. With the knee flexed, these two points are brought near, thus allowing the muscles to contract.

Another troublesome and annoying deformity is a contraction of the thigh flexors, especially the tensor vaginae femoris. This occurs when the child lies with the thigh flexed, abducted and rotated externally. Occurring insidiously as it does, it is seldom noticed till the contraction has become fixed. If the plaster splint is applied well up on the thigh and external rotation is prevented, this will not occur, as the thigh, as a rule, will not be flexed if the knee is immobilized. Also the spine and abdomen should be watched, as deformity is very likely to occur, although the spinal deformity does not occur as a rule until the patient is allowed to sit up. When this does occur it is treated with the application of a light brace, such as the Knight corset, or a plaster of paris jacket. I consider the former better, as it is light, more sanitary and easy of application, if properly fitted.

According to observations made by the writer, during the epidemic of 1916, about 25 per cent of the cases had some form of paralysis of the upper extremity. The muscles of the shoulder and of the deltoid occurring more frequently than any other muscle. It is in this stage that so much can be done for this group of paralysis, as the constant drag of the weight of the arm on the shoulder muscles and especially of the deltoid, causes strain on already weakened muscles which must ultimately give way. It also causes stretching of the brachial plexus, the roots of which are already inflamed, tender and easily irritated, in this way producing a paralysis which may never recover.

From my observations and the treatment of this group of muscle paralysis by the application of some apparatus, either brace or plaster of paris splint (a brace being used in cases under my care), I believe that a large number of otherwise useless arms can be restored to at least almost normal functions. This treatment must be instituted early to be of value. There is scarcely another group of paralysis so distressing because of the marked relaxation and uselessness which occurs in this class of cases. In the treatment of this group of paralysis the arm is

held up at right angle to the body, and if there is evidence of paralysis of the external rotators of the arm the forearm should be held at a right angle to arm and rotated outward. The strong pectoral muscles being internally rotated and pulling on the weakened external rotators, may produce an irreparable paralysis. You can readily see that this position will take all strain off the muscles.

The second, or convalescent, stage begins with the disappearance of the tenderness and lasts for about two years or until there is no longer a return of muscle power. It is in this stage that so much can be done, and yet, as a rule, so little is accomplished. The question of active exercise is a vital one, since deformities often occur which are entirely preventable. If a patient can stand and walk without deformity, so much the better, as moderate exercise is beneficial. However, if on standing, there is deformity, this must be adequately met, either by the application of suitable apparatus, or by restraint from walking, temporarily at least. If allowed to bear weight on a part in which deformity occurs, there must necessarily be a stretching of the soft parts with consequent bony changes.

Physiologists teach us that by repeated stimulation of the muscles there is a point reached where there will be no response to a stimulus. In other words a state of muscle fatigue is brought about. The same is true if we have a strong muscle acting against a weak or paralyzed one. The weak or paralyzed muscle reaching the point where it ceases to be in a stage of tonus and failing to respond to stimulation. The same principle applies to weak muscles, as by over exercise of strain, muscle fatigue sets in early and is harmful, Lovett (c) stating that the ratio of weak to paralyzed muscles is nine to one. Thus, we realize how important it is to prevent overstrain in these weak muscles. The foremost important therapeutic measures in this stage are muscle training, massage, heat, and electricity.

Lovett, in his Symposium on Treatment of Infantile Paralysis, says in regard to muscle training:

> Muscle training is doubtless the most valuable and reliable of these measures. It consists in an attempt to drive an impulse from the brain to the affected muscle by a new route. The bundles of motor centers are connected with each other and with the muscles by most intricate connections, and in the partial destruction of such centers, which is more common than their total destruction (as shown by the predominance of partial paralysis), it is obviously reasonable to attempt to find and cultivate a new route for an impulse by calling for the performance of a motion and aiding the performance of that motion by the hand. With subsequent attempts the voluntary control is likely to increase, and, in the opinion of the writer, we have in carefully directed muscle training at this stage the most valuable part of our therapeutic equipment.

It seems very necessary that we should carry out this training as thoroughly as can be done with the coöperation of the patient. Massage is of value if given properly, or it may be harmful if too frequent or applied with too much force. Massage only stimulates the blood supply to the parts and does not cause any nerve impulse to reach the muscle. Heat increases the blood supply, thus aiding muscle action, and is of value when given in connection with muscle training. Electricity is harmful if given before the acute symptoms have subsided, but probably productive of some good if properly applied. However, it is not used extensively in a number of larger clinics. It is here, as well as in the later stage, that braces will be required. Braces are applied to support weakened muscles, for the prevention of deformities and to aid in ambulation. Brace treatment is often left to instrument makers, who have no conception of anatomy; consequently the braces are ill applied, usually heavy and nonsupporting in many instances, and the patient becomes discouraged with the treatment, resorts to crutches or walks on a limb which has no support for the weakened muscles. He will continue in this state until he becomes an absolute cripple, and it becomes necessary to start with the treatment which should have been begun just after the onset of the disease, with the added burden of correcting the deformities.

Braces, to be of service, should be light, practical, and yet supportive. being made individually for each limb and for the correction of each deformity. It is impossible to carry out a set rule when there are scarcely two cases with identical conditions. It is agreed by most prominent men who are doing a great deal of this work that no operative treatment is to be done within this period except for the correction of deformity so that brace treatment may be applied.

The chronic stage, beginning at the end of two years, continues throughout the life of the patient. In this stage the various operative measures may be carried out, as by so doing the function of the limb may be preserved, thus doing away with brace treatment or aiding the efficacy of braces. There has been a great deal of discussion of the various operations devised for the correction of these deformities, which is too lengthy for discussion here, but I wish to state again, that the principle of conserving the tissue here is also very important.

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THE INFLUENCE OF THE UPPER AIR TRACT ON RESPIRATION.*

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I invite attention to respiration not merely as a mechanical ingress and egress of respired air, or an interchange of gases in the lungs, but as a very complex biological process covering both external and internal respiration in the tissues of the body.

The subject is one of far reaching import, and has a very practical bearing on the principles of treatment of many widely differing affections of the upper tract. The nasal chambers are more than mere tubes through which air is drawn into the lungs. The inspired air in traversing the nasal passages is sterilized by the arrest of all the micro-organisms; rendered dust free; raised in temperature to nearly blood heat, no matter how cold the surrounding temperature may be; saturated with moisture, no matter how dry the outside air is, so that on reaching the trachea the inspired air is completely warmed and moistened. These well recognized physiological functions of the nose impress us with the importance of the value of nasal respiration; but there are other physiological functions which are of equal clinical import, though less generally recognized.

Before considering the clinical aspects of our subject, let us first recall briefly certain physiological and experimental data. The gelatinous substance of Rolando is the receptive nucleus of the fifth nerve which is the sensory nerve of the nasal mucosa, while the nucleus ambiguous is the chief motor center of the vagus which supplies motor innervation to both the bronchi and the heart. By sections through the medulla of a mouse, Cojal has shown that the collateral fibers from the gelatinous substance of Rolando break up under the motor nuclei of the facial and vagus, from which he inferred that these several nuclei communicate.

The common experience that led to the use of smelling salts to stimulate the flagging heart has left us in no doubt that stimulation of the olfactory nerve may inhibit the heart's action and cause fainting, while a strong smell may influence other branches of the vagus causing nausea or even emesis.

*This paper was first read before the Wilson County Medical Society.

The experimental observations of Spencer, of Munk, and of Dixon and Brodie show profound influence of the nose on respiration through the pulmonary vagus, and emphasize the importance of the olfactory fissure as the normal inspiration air-path.

It is a known fact that inspiratory dilatation and expiratory diminution of the lung alternately stimulate the inspiratory and expiratory bulbar center, therefore, while the nasal passages are regarded as the upper end of the respiratory tract and physiologically as part of the tracheo-bronchial tree, we can hardly avoid the conclusion that the act of respiration through the nose likewise actually stimulates these centers and that it is a physiological factor in the full and complete dilatation and diminution of the lungs.

No one can fail to note the marked fall in blood pressure and the weakening of the pulse, which are often observed when the muco-perichondrium is being stripped during a submucous resection of the nasal septum under general anesthesia. Furthermore, the influence of the upper respiratory tract on the respiratory centers, and to less degree on the correlated cardio-inhibitory and vasomotor centers, is shown by the inhibition of respiration on palpating adenoids, and sometimes in the course of their removal under chloroform, and the profound subjective sense of suffocation and weakening of the heart's action produced when a crumb or a drop of fluid "goes the wrong way."

We are now certain of the existence of broncho-dilator fibers as well as constrictor, consequently the respiratory center in the bulb must be correspondingly double, inspiratory and expiratory. It is, also, certain that the inspiratory and expiratory respiratory centers induce rhythmical vasomotor impulses in the vasomotor center. So we may infer that the double respiratory center induces corresponding rhythmical dilations and contractions, precisely as we know it does induce rhythmical abduction and adduction of the vocal cords. From these facts we come to the conclusion that, just as the alae nasi above, and, lower down the respiratory tract, the vocal cords dilate and contract with inspiration and expiration, so do the smaller bronchi dilate and contract with inspiration and expiration. The inspiration is prolonged as compared with expiration by the air inspired through the nostrils, glottis, and bronchioles, being to some extent locked in the alveoli. The irritation of an inflammatory condition, as bronchitis, exaggerates this normal bronchial contraction, so that inspiration is still more prolonged as compared with expiration.

In dyspnea of bronchial asthma, the normal expiratory bronchial contraction is exaggerated, due to the stimulation of the respiratory

bulbar center; hence expiration is so greatly prolonged that a fresh inspiration has to be taken before the last inspired air is completely expired, the inevitable result being over distention of the alveoli and emphysema, difficulty in taking more breath, and excessive effort to empty the lung during expiration. The excessive irritation in asthma simply exaggerates the normal expiratory bronchiolar contraction, while corresponding vasomotor disturbances are also engendered and constitute an important factor in the attack.

Of course, I do not mean to say that precisely similar influences on the bulbar respiratory centers may not be engendered from other directions, the lungs, the stomach and various toxic conditions of the blood; but it is certain that nasal disease does sometimes cause asthma. The occurrence of bronchial asthma in association with various abnormal conditions in the nasal passages is due to the irritation of the sensory nerve causing reflex overstimulation of its intimately correlated bulbar respiratory and vasomotor centers in susceptible individuals. By the law of reflex irritation, with an increasing stimulation, the reflex action spreads to correlated areas; hence asthma and prolonged or severe hay fever involves in greater degree the respiratory center and in a measure the corresponding vasomotor tract. In hay fever the irritation of the fifth nerve causes reflex sneezing (expiratory) and lacrymation (vasomotor).

Let us now study the various stages in a developing nasal asthma associated with nasal polypus due to infective ethmoiditis where there is more or less complete occlusion to compel the patient to be a mouth breather. At first there is but little or nothing to be seen beyond perhaps slight turgescence in the mucosa; the patient complains of frequent sneezing, till the sneezing tends to culminate in asthma. We examine the nose and conclude there is no evidence of disease. In course of time, and it may be for a year or two, the infection of the submucosa leads to grosser changes and polypi begin to develop, the asthma recurring with greater frequency. If we see the patient for the first time when the polypi are there, we are prone to conclude that these polypi have caused asthma, instead of attributing the polypi and the asthma merely as the results of a common cause. This explains why simple spurs and deviation of the septum very rarely cause asthma unless they are so situated as to interfere with normal nasal respiration. A submucous resection of the septum, or, in fact, any intranasal operation, may favorably influence the attacks of asthma, though a more permanent and beneficial influence is often established on quite different grounds, when by such means a definite intranasal obstruction is removed with the effect of reëstablishing normal nasal respiration.

This brings us to another point—the influence of a normal air-path in nasal respiration. There are patients who complain of stuffiness in the nose, and yet can breathe air in and out through the nose. This subjective sense of obstruction is due either to an enlarged middle turbinal, ethmoiditis, a septal deflection high up, or some cause of obstruction in the normal air-path through the olfactory region, and occasionally cases of failure follow submucous resection of the nose, from the fact that though the patient can breathe freely in and out of his nose, the freedom is confined to the lower part of the nasal passage. It is most important to avoid being over conservative if the patient is to get the full benefit of a septal resection.

It is as easy to exaggerate as to undervalue the importance of those nervous respiratory influences which I have mentioned. There are many persons who have had marked nasal stenosis for many years without discomfort and without symptoms; yet in considerable proportion there is at least some degree of apathy, an absence of that fullness of life and energy which one expects in an otherwise healthy and normal individual. In such a restoration of nasal respiration often proves most helpful, and sometimes, in my experience, results in increase of appetite and weight, intellectual quickening and general *bien aise.*

Our attention has been directed to the importance of normal nasal respiration in phthisis, and to the distinct improvement in the patient's lung condition that results from the removal of obstructive defects, and the treatment of conditions productive of nasal catarrh or purulent secretions. This improvement is due to the fact that with normal nasal respiration the oxygen and carbonic acid exchange in the alveoli with more rapidity, and the lungs are more fully distended. As a result of my experience I cannot speak too strongly of the importance of a normal condition of the upper air-passages in preventing consumption and other pulmonary diseases and in helping the cure of these.

You are aware of one of the most common effects of adenoid growths on resilient chest-walls of children, due to the physiological persistence of nasal respiration during sleep; and you have in your own practice realized the change that operative treatment effects from the anemic picture of apathy, with half-filled lungs, subnormal temperature, and so-called "poor circulation" into the bright, ruddy-faced child. As long as there is no fairly definite correspondence between the size of the adenoids and the degree of nasal obstruction on the one hand, and of the Eustachian tubes on the other, we cannot assent to the prevalent theory that the interference with nasal respiration is simply mechanical

constriction of the choanae narium by the increased size of the naso-pharyngeal tonsil (if we exclude quite exceptional cases of unusually large adenoids). Often one finds that the most pronounced and characteristic symptoms including catarrhal otitis, are due to relatively small adenoid growths, while on the other hand we sometimes meet with children with perfect nasal respiration, apparently in excellent health, in whom it has proved necessary to remove adenoids simply on account of recurrent catarrhal otitis. Since lymphoid hypertrophy is in a sense protective, we find small infected tonsils and adenoids may exercise inhibitory influence on the virulence of the infective organisms less completely than those larger masses of adenoids or faucial tonsils which may exist without causing any symptoms. If we may attribute to these lymphoid aggregations the role of "organism-destructor," it would seem they are protective only up to a point, and thenceforth serve as breeding grounds whence the mucosa of the nasal passages, the Eustachian tubes, or the trachea and bronchi are constantly reinfected. It is the resulting rhinitis which causes the symptoms of nasal obstruction, the salpingitis of Eustachian tube obstruction.

When children have constant rhinitis from adenoids they are deprived night and day of one normal stimulus to fill their lungs: consequently, even when they do not snore (for not every child with adenoids does snore,) and there is no obstructive dyspnea, their lungs are unfilled. and we find dullness and flattening below the clavicles. Yet such defects hardly attract attention when, owing to marked inspiratory embarrassment during sleep, the typical inframmary recession and pigeon breast develops the more characteristic chest deformities due to well-marked adenoid growths.

Adults may suffer little more than discomfort from nasal musoca being covered with mucus, but children, for good or ill, are in far greater degree susceptible to reflex influences. It is the presence or absence of symptoms that should determine the question of operative removal of adenoids and tonsils, and not their being merely larger or smaller than normal. We should no more remove fairly healthy tonsils, faucial or naso-pharyngeal, than we would a sound tooth, on the excuse that it may become diseased if left; but, as we sacrifice a diseased tooth, so must we often sacrifice diseased tonsils and adenoids, which, like septic teeth, may be productive of grave systemic symptoms.

MEDICAL EXPERT TESTIMONY BEFORE THE COURTS.

A. W. Knox, M.D., Raleigh, N. C.

Gentlemen, I take it the first and most important part of this paper is as to whether or not we shall adopt these resolutions.

I invite your attention today to a few thoughts on the subject of Medical Expert Testimony Before the Courts, and more particularly to one phase of it, to wit: The prevailing method of choosing and summoning medical expert witnesses by, and for, the prosecution and defense. For a long time this method has seemed to me quite as likely to defeat, as to promote, the ends of justice—so far as the influence of such witnesses is concerned.

The medical expert should be as impartial as the judge upon the bench and his testimony should be brought before the court upon the basis of *scientific fact and scientific opinion only.* He should be, as it were, the court's adviser on questions of science; the court should select him and fix the amount of his fee and should, itself, determine the number of experts in each case; the State should pay for his special services; and neither party to the suit should be permitted either to select or pay him, or in any way direct or sway his leanings save under the court's direction. And yet, under the prevailing system, when a medical man is summoned as a witness and accepts service, he in effect is thereby committed—and commits himself—to the interests of that party to the suit by whom he is summoned and paid; and it not infrequently happens that the amount of his fee is agreed upon beforehand. He knows he will be rigorously—nay, sometimes even harshly and viciously—cross-examined by attorneys for the other side, who will persistently strive to confuse his thought and tangle his wits in the effort to humiliate and discredit him as an expert. His anticipation of this contingency leads him to fortify himself against attack and strengthen his defenses more and more in support of the side he has espoused, thus *binding him more firmly still to one side only,* when in reality he should be *only bound to the establishment of scientific truth* in the interest of justice. And so, whether consciously or unconsciously, he is apt to become a partisan and prejudiced witness. I have, myself, experienced the embarrassment of this feeling—many times—and have wished for a wiser and fairer way of rendering the medical expert as nearly impartial as possible. Indeed, it is a matter of surprise to me that the courts

still permit the continuance of this discreditable state of affairs. The wrongfulness of it is so apparent that it seems, at times, a travesty upon justice.

"Experience," said Mr. Justice Greer, "has shown that opposite opinions of persons professing to be experts may be obtained to any amount; and it often happens that not only many days, but even weeks, are consumed in cross-examinations to test the skill or knowledge of the witnesses and the correctness of their opinions, wasting the time of the court and wearying its patience, and perplexing, instead of elucidating, the questions involved in the issue." (*Winans v. N. Y. & Erie R. R.*, 21 How. 88, 100.)

Chief Justice Chapman, of Massachusetts, once said to a jury: "I think the opinions of experts are not so highly regarded as they formerly were; for, while they often afford great aid in the determination of facts, it often happens that *experts* can be found to testify to *any* theory, however absurd. The experts before you are gentlemen of learning, and you must choose between them." (Trial of Samuel Adams, page 256.) Fine sarcasm, delicately veiled, may lurk in this closing sentence.

A forceful writer in the *American Law Review* (Vol. V, page 441,) says: "Indeed, upon this point the authorities are agreed. Very little weight is to be attached to expert testimony, often none at all, and very often it is worse than useless for court and jury to listen to it." The same writer says (*Ibid.*, p. 441.): "No one, of course, is prepared to say that the courts can get on without such evidence. For scientific men possess knowledge without which no enlightened administration of justice can be maintained. The remedy is suggested by the nature of the abuse to be removed. Experts are now called and paid by the parties themselves in the suit. Nothing is more natural than that such a circumstance should tend to impress an *ex parte* character upon the evidence which they give. And though it would seem that a man's opinion, or belief, founded on a particular state of facts, should be as certain and definite a thing as the facts themselves, yet experience has shown that matter of opinion, even on the most rigidly scientific subjects, is so chameleonlike, if we may so speak, that it is exceedingly likely to take its color, in the matter of legal evidence, from that of the side which has made its first overtures. The remarkable fact relating to this matter is, that the opinions of honest and conscientious men are often thus swayed and affected. Experts, then, should be selected by the court, without any interference on the part of the litigating parties. In that way, all inducements to give partial or biased opinions, whether consciously or

unconsciously, would be removed, and the scientific witness would have, or should have, no interest in the suit whatever. They are called merely and solely to give the court and jury instruction. They may be considered *amici curiae,* and should be dignified accordingly. Some such scheme has received the sanction of eminent judges and jurists." (For reference, see *Ibid.,* p. 442.)

Jones' Commentaries on Evidence (sec. 390) says: "The notorious fact that experts of equal credibility and skill are found in almost every important case testifying to directly opposite conclusions illustrates both the fallibility of such testimony and the fact that a conviction for perjury based upon such evidence would be very difficult. It is a matter of common observation in the courts, that witnesses of the highest character and of undoubted veracity may be easily led, as experts, to espouse and defend a theory with all the zeal of the advocate. Again, the practice sometimes prevails of employing expert witnesses and paying them for their services, as compensation, amounts depending upon their skill, or perhaps on the result of the action. These and similar considerations have led to those strictures upon expert testimony so often made in instructions to juries or in judicial decisions." (*Ibid.,* sec. 391, p. 971.)

"These doctors," said the Supreme Court of Illinois a few years ago, "were summoned by the contestants as 'experts' for the purpose of invalidating a will made by a man quite as competent as either of them to do such an act. They were the contestant's witnesses and so considered themselves. The testimony of such is worth but little and should always be received by juries and the courts with great caution. . . . They may be able to state the diagnosis more learnedly; but upon the question whether it had, at a given time, reached such a stage that the subject of it was incapable of making a contract, or irresponsible for his acts, the opinions of his neighbors, of men of good common sense, would be worth more than that of all the experts in the country. . . . The facility with which great numbers of witnesses may be marshaled upon both sides of such a question—all calling themselves experts and each anxious to display his skill and ingenuity in detecting the false and pointing out the true, and equally honest and confident that his own opinion is the only correct, and yet all on one side directly opposing all on the other—admonishes us of the fallibility of such testimony, and of the great degree of allowance with which it must be received. The evidence of witnesses who are brought upon the stand to support a theory by their opinions, is justly exposed to a reasonable degree of suspicion. They are produced—not to swear to facts observed by them,

but to express their judgment as to the effect of those detailed by others; and they are selected on account of their ability to express a favorable opinion, which there is great reason to believe is, in many instances, the result alone of their employment and the bias arising out of it. Such evidence should be cautiously accepted as the foundation of a verdict; and it forms a very proper subject for the expression of a reasonably guarded opinion by the courts. (*Templeton v. People*, 3 Hun. (N. Y.); *People v. Perriman*, 72 Mich., 184, 40 N. W., 425.) We cannot close this section without reproducing from two New York cases *dicta* which are convincing expressions of judicial distrust. . . . We may assume, also, that their (the experts') minds were affected by that pride of opinion and that kind of mental fascination with which men are affected when engaged in the pursuit of what they call scientific inquiries. (*People v. Patrick*, 182 N. Y., 131, 74 N. E., 843, 861, dissenting opinion, O'Brien J.) . . . He (the expert) comes on the stand to swear in favor of the party calling him, and it may be said he always *justifies by his works* the faith that has been placed in him." (*Roberts v. N. Y. El. R. Co.*, 128 N. Y., 455, 13 L. R. A., 499, 28 N. E. 486, 491.

An eminent writer has truly said: "Despite the fact that expert testimony may be, and undoubtedly often is, descended to base uses, its value—when experts of integrity as well as knowledge testify upon facts which are proven—is great in proportion to their qualifications and to the aid which their testimony affords to the jury in arriving at a just discrimination."

On November 4, 1914, the Supreme Court of North Carolina filed an opinion in *Tilghman v. R. R.* (Seaboard Air Line), from which I extract the following paragraph on the medical expert and the court's suggestions as to his future status:

The evidence of the experts conflicted on this question. Under the present system of summoning experts, they are selected (as witnesses to the facts are) because it is ascertained beforehand that their testimony will be favorable to the side that summons them. It has long been suggested by leading members of both the legal and medical professions that the method of summoning expert witnesses should be radically changed, and that they should be the *witnesses of the law* and not of either party. There is a strong opinion that experts should not be summoned in any case, civil or criminal, except upon an order made by the judge on motion and notice to the opposite side, and upon a finding of the judge that it is expedient that such experts should be summoned. And thereupon the judge shall fix the number, not exceeding three, and shall select the experts and fix their compensation, with a provision that no other experts shall be examined on the trial; and they shall receive no other compensation. This is a matter, however, for consideration by the General Assembly.

Soon after the Thaw trial Dr. Allen McLane Hamilton, of New York City, in a communication to the *New York Sun* in defense of medical experts against *unjust* and *exaggerated* criticism, wrote as follows on

"WHY EXPERTS ARE DISCREDITED":

In an after-dinner speech last night David McClure, who was one of the commissioners who sat in the Thaw case, took occasion facetiously to criticize medical experts—just as others have repeatedly done upon other like occasions. Nothing could have been more absurd and incomplete than the examination of the prisoner by this individual and his associates, who could not—even if they had seriously desired—have determined the existence of paranoia in the defendant by the methods adopted. In fact, this part of the trial was the most farcical of all.

It cannot be denied, however, that there is need of complete reform in the use of experts in criminal trials, and this cannot be brought about until the courts themselves appoint, as I have elsewhere suggested, a permanent board of experts, and when those who make or interpret our laws unbend sufficiently to admit that there are mental diseases that cannot always be recognized offhand by laymen or even by learned commissioners. It is this intolerance that has placed the medical expert in the undesirable position he now occupies, for, with comparatively few exceptions, nothing can be said against the honesty of purpose of most medical men who go upon the witness stand, so that Mr. McClure's unqualified assertion that medical experts can be purchased without difficulty, to swear to anything, is false.

As legal requirements now stand, the doctor is obliged to answer idiotic hypothetical questions or to adopt arbitrary definitions which are an insult to his intelligence. The rock upon which so many otherwise well qualified medical men split in the recent trial is section 21 of the criminal code which requires that the defendant, to be exculpated, must "suffer from such a defect of reason as not to know the nature and quality of the act and that it is wrong." While these words may carry to the lay mind a simple and adequate idea of irresponsibility, all of us who know anything at all about our cases are aware that a dangerously insane and irresponsible person and a potential murderer may know that he is engaged in the perpetration of an act that is illegal and may suffer from an incapacitating insane delusion or series of insane delusions. The knowledge of the "nature and quality of an act" implies more than the consciousness of its mere performance, and that it is punishable; a full knowledge implies the relation of its . . .

The following strong editorial in the *New York Independent* of July 26, 1915, is worthy of your attentive reflection:

SANITY AND INSANITY.

A jury decided that Harry Thaw was insane, and that saved him from the electric chair. A few years later another jury decides that he is sane; but nobody believes he is any more sane now than he was when he murdered Mr. White, or, to put it otherwise, nobody believes he was any more insane then than he is now. When they declared him insane it was argued that he

had *inherited* the taint of insanity. He certainly has not lost it since then. . . . The purpose of the counsel is not to present the truth, but to persuade or even mislead and deceive the jury. Money will hire able, eloquent, and skillful lawyers who can pervert the minds of twelve plain, common men, not too shrewd, and make the worse appear the better reason. The case shows sadly and dangerously what money can do. Money could not do anything coarse or visibly corrupt. It is much to the credit of our jurisprudence that money could not prevent long detention with the criminally insane, but it could once save the criminal's life and again claim his freedom. It could get so-called *experts* to declare him first insane and then sane, and eloquent and astute lawyers to secure and present the evidence desired, and pervert it if required. This is a very serious case, and it is one that demands the attention of legal associations, to consider what legislation may somewhat equalize the conditions and privileges of rich and poor.

It has often been suggested that expert testimony has come to be such a disgrace that a body of experts should be appointed by the courts, to whose impartial discussions questions of insanity should be left, instead of *buying testimony* for or against one who makes this defense.

Now, I think there is no question that the best men in both the legal and medical professions agree upon the desirability of a sweeping reform in the present manner of selecting and using the medical expert witness. But how shall this great desideratum be secured? To my mind the answer seems simple and self-evident. If the best men in both professions are really agreed that the change is desirable and necessary, then a concert of action between them should easily bring it about. And the medical profession itself, acting through this Society, should initiate the movement and should call upon the legal profession, including the judges of both the Supreme and Superior Courts, for active coöperation in the effort to bring it to fruition. It is peculiarly fitting that we should begin it, *because the abuse is within our ranks*, we are the catspaw of an unwise law and we suffer the opprobrium thrust upon us by that law, and will continue in the shame of it until we arise and shake it off by insisting on a radical change in the law. We must not wait for others to begin the movement; we must start the ball rolling ourselves.

I believe that such a movement, thus begun by us, would meet with the hearty response and active aid of our judges and the better class of lawyers generally. Of course, the shyster-lawyer in every community would object; but he would be a negligible quantity because in a small minority. And some members of our profession also will fight the undertaking, or sidestep it, for there are chronic objectors to all reforms, even in our own ranks. Yet they also, like the shyster-lawyers, will not for long obstruct the wheels of progress which even now are rolling onward towards their proper goal.

In a recent conversation with Chief Justice Clark, whose opinion and advice I sought in the premises, he declared himself as heartily in favor of a radical change in our present methods in the matter of medical experts. He also said that the manner of their examination solely upon hypothetical questions should be abandoned; and he told me, in addition, that, if this Society should definitely inaugurate a movement towards positive action in the direction indicated, he felt confident that such a course would have decided weight with our lawyers and judges in securing their coöperation.

It seems to me that the time has come when we should launch this movement towards a reform of such momentous influence for good in so many directions. And what more opportune time than the present meeting—representing, as it does, the entire medical profession of North Carolina—could be vouchsafed to us? If it shall succeed, it will serve to remove the very just grounds of reproach from our noble profession and will make for the general welfare, in matters of litigation, for all the people of the State. If it take time and persistent effort, that should not discourage us; for it is the law that governs all things really worth while, that we must labor persistently for their establishment. Even the corn that sustains our life and strength demands of us ceaseless toil and patient waiting for its full development and maturity. And *its* law is: "First the grain, then the ear, after that the full corn in the ear." Yet its full fruition, if only we follow its law, is no more sure than the final adoption of *this wiser way* in regard to the medical expert, if here, too, we labor and toil and patiently wait with the same abiding faith, wherewith we plant the tiny grain of corn.

In conclusion, I wish to lay before you for your consideration and action some definite resolutions on the subject I have brought before you. They were formulated, at my request, by our honored and mutual friend, Dr. Richard H. Lewis, to whom I gladly tender my own and your thanks for the clearcut and forceful way in which he has put into simple words the ideas and suggestions I would like to see embodied in a legal statute by our next Legislature. I bespeak for them your earnest and deliberate attention. Modify or change them in any way that may to you seem best; but let us go on record today not only as favoring, but demanding, the early achievement of this beneficent reform. They follow here; and I cannot more fittingly close my paper than by offering these

PREAMBLES AND RESOLUTIONS ON EXPERT MEDICAL TESTIMONY BEFORE THE COURTS.

Whereas the medical expert witness, as at present selected and used in our courts, has justly become a reproach to our profession and to the great science of medicine in the public mind; and

Whereas the divergence of opinion between all the experts on one side and all the experts of the other side on a given scientific question is often radical and uncompromising; and

Whereas this unfortunate situation is largely due to the fact that many physicians of deservedly great reputation are not, in reality, true experts in the particular line of inquiry before the court, and to the further fact that, in the weakness of our human nature, few can avoid being more or less biased in favor of the side which employs them; and

Whereas it may happen that a real expert of great knowledge and skill, but low moral character, may for a consideration so testify against scientific truth as to convince the court and jury—who, in the nature of things, are ignorant of the elaborate and intricate technicalities of medical science—and may thereby bring about a gross miscarriage of justice; and

Whereas, in view of the above, the medical expert should always be a true expert and a wholly impartial witness: now, therefore, be it

Resolved, That it is the sense of the Medical Society of the State of North Carolina, in regular meeting assembled, that, in the interest of justice to all our people and for the protection of the good name and dignity of our profession, the medical expert should be as free from bias as the judge upon the bench; and be it further

Resolved, That, to promote this laudable end and purpose, some method should be devised by the legal profession whereby all medical experts shall be selected by the court and paid by the State, as the medical advisers of the court.

Resolved, That a copy of these resolutions be sent to the Supreme Court of North Carolina, through its Chief Justice, and that they be published in the *Asheville Citizen*, the *Charlotte Observer*, the Raleigh *News and Observer*, the *Raleigh Evening Times*, and the *Greensboro Daily News*, for the proper information of the public generally as to the position taken on this vital question by this Society.

DISCUSSION.

Dr. J. T. J. Battle, Greensboro: I wish to congratulate the Society on having such a splendid paper as this presented to it, and to commend Dr. Knox for such a timely, succinct and appropriate one. To have his ideas and suggestions adopted by the courts would be far more advantageous in attaining the ends of justice than the present system. When a doctor is put on the stand as an expert it is too often the case, or seems to be, that the lawyer on the opposing side wishes to make him say what he does not intend, or to misconstrue what he does say, and the manner in which the questions are asked puts the witness in an antagonistic mood. Thus he does not always bring out the whole truth, as that is what he does not want. With the doctor's plan adopted, it would be to the advantage of the experts and the court. I therefore move that the resolutions take the course as outlined by Dr. Knox.

Motion seconded by Dr. F. R. Harris, Henderson.

Dr. F. R. Harris, Henderson: I know whereof I speak. I have been before the court as an expert and I know how we suffer and I know how the profession suffers, and I want to thank Dr. Knox personally for bringing this paper before us. I think it is one of the most important subjects we have heard.

Dr. A. A. Kent, Lenoir: In the long number of years that I have been a member of this Society never have I heard a proposition offered as a resolution which appealed to me more strongly than the resolutions which have been offered by Dr. Lewis through Dr. Knox. I do not think I have ever heard a finer presentation of argument in favor of a set of resolutions than that by Dr. Knox. It may be that I am partial to Dr. Knox because of the fact that I have so sorely felt the need of just such a law as Dr. Lewis' resolutions would provide. I have been a witness several times in court, in which the life of a human being depended upon the evidence of a doctor, and that doctor employed by one side in the case, when I felt perfectly sure that he should be the impartial witness as much of one side as the other. I have seen cases in court; in fact I am a witness in a case in court now, in which a large property depends upon what the medical testimony shall be as to the fitness of a man to bequeath his property at the time that he wrote a will. Either one side is to attain a property to which it is not entitled, or else the other is to gain a property to which it is entitled. One side is to lose, the other to gain. Whether right or wrong, all depends upon the testimony of a doctor in that case. These cases are common to all of us, and we know, gentlemen, how difficult it is to render the testimony that we desire to render. We are heckled by lawyers who do not desire to bring out the truth and the facts in the case, who do not desire that the jury shall hear from the doctor a plain statement of an opinion, one that they can perfectly understand and act upon. It is the duty of the lawyer to mislead the jury as to what the doctor is really testifying. He is paid to do that, and of course he is going to do it. If these resolutions were in force and effect as law he would be the witness of both sides, one side as well as the other, and the object of every court should be to mete out justice to all parties concerned. I heartily endorse and second the motion to adopt these resolutions.

The resolutions were unanimously adopted.

Dr. C. O'H. Laughinghouse: I have been coming to the Society for quite a number of years, and this section today has done, I believe, better work than has been done ever before in any one day of the Medical Society of the State of North Carolina. Every man in it has been interested, the papers have been splendid, and if there have been any imperfections it has been entirely due to the bunglesomeness of your chairman. I hope tomorrow I will do a little bit better.

Dr. L. H. Webb, Chapel Hill: I would like to suggest that a copy of those resolutions be sent to the *Journal of the American Medical Association* and *Southern Medical Journal.*

Motion seconded by Dr. Oscar McMullan; motion carried.

SURGERY

A REPORT OF SURGICAL WORK DONE IN NORTH CAROLINA IN 1915 AND 1916.

J. F. Highsmith, M.D.

When the Chairman on the Section of Surgery asked me to make a report of the surgical work done in the hospitals of North Carolina in a definite period, leaving it to my discretion as to the limit of time, I decided to attempt a report from the various hospitals of the surgical work done for the years 1915 and 1916, inclusive.

Before accepting this request, I fully realized the magnitude of the effort which would be necessary to make this complete, and thought I saw many difficulties in my way. Not being one of those to shrink from duty, I proceeded to give the matter thought, and the more thought I gave it the more complex the proposiiton became for one in my position whose time was already taken. However, I addressed the following letter to sixty-five hospitals, thinking they were doing the greater part of the surgical work in North Carolina:

My Dear Doctor:—The Chair on the Section of Surgery for the next meeting of the Medical Society of the State of North Carolina, which meets in Asheville in April, has requested that I get a report from the various hospitals in the State as to the surgical work done in the years 1915 and 1916. If you will give me this information, classifying the work, the same will be appreciated.

I think you will agree with me that the movement is a good one, but will take painstaking endeavors on the part of each institution, that they may show something of the surgical work that is being done in North Carolina at the present time. This properly done will be a great help toward the standardizing of our institutions in North Carolina. We are not known as we should be.

Please give this your best attention as quickly as possible, and report to me, that I may assemble the various reports and be ready for the coming meeting.

In the event that you do not do surgical work, please so notify me.

Very truly yours, J. F. Highsmith.

Washington Hospital ..... Washington, N. C.
S. R. Fowle Memorial Hospital ..... Washington, N. C.
Clarence Barker Memorial Hospital ..... Biltmore, N. C.
Mission Hospital ..... Asheville, N. C.

Meriwether Hospital ..... Asheville, N. C.
Biltmore Hospital ..... Asheville, N. C.
Grace Hospital ..... Morganton, N. C.
The Concord Hospital ..... Concord, N. C.
Foothill Sanatorium ..... Lenoir, N. C.
Sturges, S. B. ..... Lenoir, N. C.
Morehead City Hospital ..... Morehead City, N. C.
Richard Baker Surgical Hospital ..... Hickory, N. C.
Andrews Hospital ..... Andrews, N. C.
Dr. Hamrick's Hospital ..... Shelby, N. C.
St. Luke's Hospital ..... New Bern, N. C.
Fair View Sanatorium ..... New Bern, N. C.
Highsmith Hospital ..... Fayetteville, N. C.
Cumberland General Hospital ..... Fayetteville, N. C.
Erlanger Infirmary ..... Lexington, N. C.
Watts Hospital ..... Durham, N. C.
Pittman Hospital ..... Tarboro, N. C.
Spencer Sanatorium ..... Winston-Salem, N. C.
City Hospital ..... Winston-Salem, N. C.
City Hospital ..... Gastonia, N. C.
St. Leo's Hospital ..... Greensboro, N. C.
Reaves' Eye, Ear, Nose, and Throat Infirmary ..... Greensboro, N. C.
Williams' Sanatorium ..... Greensboro, N. C.
High Point Hospital ..... High Point, N. C.
Roanoke Rapids Hospital ..... Roanoke Rapids, N. C.
Good Hope Hospital ..... Duke, N. C.
Billingsley Hospital ..... Statesville, N. C.
Long's Sanatorium ..... Statesville, N. C.
The Robert Bruce McDaniel Memorial Hospital ..... Kinston, N. C.
Charlotte Sanatorium ..... Charlotte, N. C.
Crowell Sanatorium ..... Charlotte, N. C.
Mercy Hospital ..... Charlotte, N. C.
St. Peter's Hospital ..... Charlotte, N. C.
The Presbyterian Hospital ..... Charlotte, N. C.
Good Samaritan Hospital ..... Charlotte, N. C.
College Infirmary ..... Davidson, N. C.
Rocky Mount Sanatorium ..... Rocky Mount, N. C.
Park View Hospital ..... Rocky Mount, N. C.
A. C. L. Hospital ..... Rocky Mount, N. C.
Harper's Sanatorium ..... Wilmington, N. C.
Walker Memorial Hospital ..... Wilmington, N. C.
Nichols and Nichols ..... Roxboro, N. C.
Infants' and Children's Better Babies Camp ..... Saluda, N. C.
Ferree Memorial Hospital ..... Randleman, N. C.
Hamlet Hospital ..... Hamlet, N. C.
Moncure Hospital ..... Hamlet, N. C.
Thompson Sanatorium ..... Lumberton, N. C.
Whitehead & Stokes Sanatorium ..... Salisbury, N. C.
Rutherford Hospital ..... Rutherfordton, N. C.
L. B. Harrill Hospital ..... Caroleen, N. C.
Mary Elizabeth Hospital ..... Raleigh, N. C.

Rex Hospital ..... Raleigh, N. C.
Goldsboro Hospital ..... Goldsboro, N. C.
Spicer Sanatorium ..... Goldsboro, N. C.
Wilkes Hospital ..... Wilkesboro, N. C.
Wilson Sanatorium ..... Wilson, N. C.
Moore-Herring Sanatorium ..... Wilson, N. C.
Mrs. Radiant Sistare, R. N., Superintendent ..... Lincolnton, N. C.
Central Carolina Hospital ..... Sanford, N. C.
Sara Elizabeth Hospital ..... Henderson, N. C.
Elizabeth City Hospital ..... Elizabeth City, N. C.

This list of hospitals was taken from the North Carolina Year Book. From these letters I received twelve replies with their respective reports:

High Point Hospital.
Elizabeth City Hospital.
City Hospital, Winston-Salem.
Morehead City Hospital.
Clarence Barker Memorial Hospital, Biltmore.
Roanoke Rapids Hospital.
St. Luke's Hospital, New Bern.
Watts Hospital, West Durham.
Rocky Mount Sanatorium.
Long's Sanatorium.
James Walker Memorial.
Highsmith Hospital.

Do not think it practical to go into the details of these reports. Suffice it to say that we have classified them into major and minor operations.

There were performed during the years 1915 and 1916 4,990 major operations and 4,521 minor operations. The major operations are abdominal, brain, thyroid, prostate, kidney, gallstone, etc. Minor operations are circumcisions, amputations of fingers, salvarsans, etc.

With the character of reports received, I cannot do better than lump the work into major and minor surgery. (Have explained with brief report of four hospitals, as illustrative, not calling names.) Am sorry we cannot report the mortality, but two institutions giving this. Think it out of place to call names.

Some of these reports reflect great credit on the hospitals in the way that they are gotten out; also in the character of the work done, the work being of high class and in keeping with that of any institutions in the country. But you can well see this is a work, to be carried out to any degree of accuracy, that means, first, a uniform method adopted by various hospitals as to the classification of diseases and well-kept case records, numerically and alphabetically, so that these reports could

be easily compiled. I believe had the sixty-five hospitals which I asked for reports been well equipped with a good system of keeping records, my request would not have been ignored.

For one to classify the reports such as I have received, to say just how many operations of various kinds have been performed, the results and terminal conditions, would take the whole and undivided time of a most competent person with some assistance and much correspondence. The idea of these reports is a good one, and as time passes would help to place the hospitals of North Carolina on the map; but even to take one institution where from 700 to 1,000 patients are handled yearly, would mean much labor and painstaking care to have case records at hand to make an accurate and intelligent report at the close of each year.

It seems to me that the first thing of importance to make this report from year to year a success, would be the organization of a North Carolina Hospital Association. A report such as I have attempted of the surgical work done is only a part, and for this to be perfected and well executed means that all other lines of work in the hospitals must be likewise performed.

The State Hospital Association could do much for medical education along the line of regulating internes. Many of our medical schools now require that their graduates serve a period as interne in a Class A hospital. If we are to have internes from the medical schools in our hospitals in North Carolina, then we must give them value received. The same thing holds with our nurses. If a nurse comes to a hospital and renders faithful service for a year, we should be on a basis such that she would be credited for the time that she has served in any other hospital that she may enter, the same as a medical student going from one college to another. These are just a few points of what a State Hospital Association can accomplish.

This is an age of organization. All other lines of business are organized. "United, we stand; divided, we fall." Up to the present time the hospitals in our State each stands by itself, and before we can have any degree of mutual relation and help to each other, we must have some plan of organization.

This is a subject which I present for the consideration and deliberation of the North Carolina State Medical Society. Twenty-five years ago, now a quarter of a century, there was hardly a hospital in North Carolina, and North Carolina was considered as a strip of land between South Carolina and Virginia where surgery was almost unknown.

The hospital spirit is growing every day. You will remember the President of our Society, Dr. M. H. Fletcher, last year at the meeting in Durham emphasized the importance of community hospitals. We have been lagging behind, but our people are fast beginning to realize the crying need of hospitals to take care of their sick and afflicted, as a thing of much importance, and not second to any other noble enterprise. Much needs to be done through this medium to increase the efficiency of the hospitals in our State.

If it be in keeping with the judgment of this body, I would like to see some plan taken whereby this question of a North Carolina Hospital Association could be organized and placed on the proper basis.

DISCUSSION.

J. F. Highsmith, M. D., Fayetteville: I am indeed glad to hear Dr. Crowell express himself on this subject because I know him to be a worker and one of those who endeavors to do his work honestly and conscientiously. Where one man has the experience of Dr. Crowell with the number of cases which he handles, we can easily see what a proposition it is to handle several thousand cases. It is very important for a hospital to be responsible for every case which comes under its supervision, recording the case, keeping of the records, etc. This is imperative.

Several thousand cases are handled each year in the hospitals of North Carolina. There are 25,000 to 30,000 major operations each year. From a legal standpoint, think of the imperative necessity of having accurate records as to the findings of each individual case. Some time ago I was summoned to a distant city in our State to testify in a case in the courts. At the time I could not leave home. It was easy from a fact that I secured the records of the case, giving them to one of my colleagues, who was a witness in the case, and he, without difficulty, gave the necessary evidence. This concerned a patient I had operated on as far back as 1892, doing a complete hysterectomy. The case was one of those deceptive cancers of the uterus beginning in the cervix, too far advanced at operation to hope for recovery. She died. Later a suit was brought against a certain insurance company because it had refused to pay insurance on one of her sons at his death, claiming that he had given his mother's history on his application as not dying from cancer. The records, of course, cleared up this, and there was no further trouble in proving this point.

It is very important that we have our State Nurses' Association interested in this keeping of records of hospital cases. Therefore, I

think it wise that we organize a North Carolina State Hospital Association that we may learn more of our common responsibilities. There is no more important move on earth than to have the hosptals to care for the sick, rendering the very best possible service. It certainly is second to nothing, far more important than good roads.

PRE- AND POST-OPERATIVE CARE OF PROSTATECTOMIES. ANALYSIS OF FIFTY-FIVE CONSECUTIVE CASES.

A. J. Crowell, M.D., F. A., C. S., and S. R. Thompson, M.D., of the Crowell Urological Clinic, Charlotte, N. C.

The purpose of this paper primarily is to emphasize the importance of careful and thorough preparation of prostatics for operation as well as to stress the post-operative treatment and, secondarily, to illustrate its value by giving a brief report of fifty-five consecutive cases operated upon at our clinic without a fatality.

Quite a large experience in this line of surgery has led us to believe that the preparation of the patient and good judgment as to when to operate are the first and most important questions in the management of these cases. The mortality following the operation has been greatly reduced during the last ten years. This is due not so much to improved technique in the operation itself as to the pre-operative treatment and post-operative care. Of the two we believe the preparation of the patient is the more important.

Practically every case calling for prostatectomy suffers with chronic retention of urine, and frequently acute retention is superimposed. The sudden and continuous relief of pressure, to which the kidneys have long been accustomed, causes more or less congestion of the whole urinary tract. In fact, this is so great at times as to produce suppression of urine. This reaction lowers the patient's resisting power, and the operation should always be postponed until it subsides. It is more marked in patients not accustomed to instrumentation and who suffer with large quantities of residual urine.

The first and most important step, then, in the preparation of these patients, is the relief of retention by catheterization, continuous or intermittent. We find that they do better if the relief is obtained by the intermittent plan to begin with, and followed with the retention

catheter. This is especially true where the patient is not accustomed to instrumentation. In this way he not only becomes accustomed to instrumentation, but the retention is gradually reduced and the normal kidney function sustained. Frequently we have arterio-sclerosis as a coincidence, and apoplexy may complicate the operation. The heart should be examined carefully for organic lesions, but the patient should not be deprived of the beneficial results of the operation should they be found, since patients suffering with valvular heart lesions usually stand ether anesthesia well.

The kidney's functional activity is reduced during the course of preparation for operation in spite of every precaution to prevent it. Therefore, no patient should be operated upon until the kidney function is good and stable.

Now as to the functional activity tests, there are many, but for all practical purposes, the phthalein functional and blood urea retention are sufficient. We have no hesitancy in operating upon patients who have a phthalein output of 30 per cent. in two hours, and especially if it is stable and without urea retention. However, we much prefer that *it be far better* and use every means at our command to get it as high as possible before operating. In one of this series it was only 20 per cent. in two hours, but it was stable and he had no urea retention. The patients, 81 and 86 years of age, respectively, had an output of only 35 per cent., but they suffered no blood urea retention and were in excellent health for men of that age.

Occasionally it is impossible to catheterize these patients or insert a catheter for continuous drainage, though we have never cared for such a case, and it becomes necessary to drain through a suprapubic opening. This can easily be done under local anesthesia by thrusting a trochar and canula into the bladder through the abdominal wall and inserting a catheter through the canula.

The urine should be tested daily for evidences of nephritis as well as for the renal functional activity. Ten to fifteen grains of urotropin should be given three times daily and the patient encouraged to drink water freely. He should be given full diet and encouraged to stay out of bed and in the open air and sunshine as much as possible during the time of preparation for operation. Purgatives should be given as is usual in the preparation of patients for operation. Warm baths to stimulate the activity of the skin are beneficial. All blood examinations, such as the Wassermann reaction, hemoglobin estimation, leucocyte count, etc., should be used as a guide in determining the time for operation.

High blood pressure is a signal to which due regard should be given. When it is simple hypertension or toxemic in character, bladder drainage frequently reduces it very markedly, but when due to organic changes of the heart, blood vessels or kidneys, the condition is more grave and the operative risk increased. The gravity of the condition is in proportion to the cardiac strain.

The bladder should be irrigated at least three times daily with a solution of boracic acid, and varying quantities of this or normal salt solution should be left in the bladder, the amount depending upon the quantity of residual urine with which we have to deal. By using great care in reducing the urinary retention, the reaction following same can be held to a minimum.

Our operative technique is somewhat different, at the present time, from that described by Dr. Hugh H. Young, whose technique we had previously followed, though in the great majority of cases it is the same for all practical purposes. The speaker, Dr. Crowell, designed an instrument, (which we will show you with lantern slides,) to be used as a guide in the urethra as well as to pull the gland down into the operative field while exposing it. We find it far superior to an ordinary sound for this purpose. It enables you to hold the gland well into the operative field while separating the rectum from it and lessens the possibility of getting into the rectum, as well as simplify this part of the operation. By using this tractor, as will be illustrated, we can remove lateral lobe enlargement without getting into the urethra. This shortens the convalescent stage and reduces to a minimum the possibility of incontinence as a complication. In this operation with our instrument, we avoid injury to the involuntary muscular fibers of the membranous urethra, which fibers have much to do with urinary control.

The instrument is constructed on the same principle as Dr. Young's seminal vesiculectomy tractor with the exception of the curve in which is a cable so that the blades can be opened after the instrument is introduced into the bladder. This curve enables you to get traction in the line of the urethra and at the same time the instrument is out of the operative field. The retractors are the same as those used by Dr. Young with the exception that we use his small lateral retractors to hold the triangular ligament up out of the way, as illustrated in the slides, instead of his bulbous retractor.

This technique should not be carried out save in those cases where a satisfactory cystoscopy has been made and you know you have only lateral lobe enlargement with which to deal and no bladder stones. The capsule of the gland should be packed with iodoform gauze, just as in

Young's operation, and the catheter inserted into the bladder through the urethra instead of the perineal wound. The packing and catheter should be removed in from twenty-four to thirty-six hours after operation, regardless of the technique employed in the operation.

The question of hemorrhage is of but little importance, and especially if you keep out of the bulb, since there is practically none either during the operation or following the removal of the packing. Drainage is perfect in this operation since it is from the most dependent point of both the wound and the bladder. There is no *drainage* of wounds *so efficient* as *drainage by gravity* and *no question so important in suppurating wounds as drainage.*

Of the fifty-five last cases operated upon by us, six were between the ages of fifty and sixty, eight between sixty and sixty-five, twenty-two between sixty-five and seventy, fourteen between seventy and seventy-five, three between seventy-five and eighty, one eighty-one, and another eighty-six.

Of these cases three, or 5.55 per cent., had stone in the bladder, and in five, or 9.1 per cent., the gland was malignant.

The average time given to the preparation of these patients for operation was eleven days. They were confined to the bed five days and remained in the hospital seventeen days after operation. They practically had control of their urine, on an average, after five days. We mean by this that they were able to retain their urine for two or three hours and voided it through the perineal opening voluntarily. In this way they protected both their dressings and bed. They began to void through the urethra, on an average, in eight days, and the perineal wound closed completely in twenty-one.

Complications following the operation were limited to a few cases of epididymitis and these occurred principally in cases in which we used, for a short tme, two catheters for drainage, one in the perineal wound and the other through the urethra, the latter being retained three or four days. After abandoning the urethral catheter and using argyrol in the urethra twice daily and cleansing the wound every three or four hours with a mild antiseptic solution, as is now our custom, we seldom have epididymitis as a complication. In so far as we have been able to ascertain by letter and personal interview there has not been a single case of incontinence or urinary fistula in this series of fifty-five cases.

In conclusion will say that we know of no operation in which the ultimate results are so uniformly good and the death rate so low in a major operation as that obtained in a perineal prostatectomy, provided the preparation of the patient, time for operation, and after treatment are carried out as indicated in this paper.

DISCUSSION.

Dr. L. A. Crowell, Lincolnton: I want to endorse what Dr. Crowell has said concerning the instrument he has designed and its advantages over the ordinary sound. In the first place, with the sound you will have considerable trouble in holding the perineum tense while making the incision, as it has a tendency to be continually slipping in and out, while with this instrument, by opening it up after its introduction, all of this trouble is eliminated. I have seen Dr. Crowell use this instrument once and was impressed with the case in which he did it, compared with similar cases where he used the ordinary sound. So much was I impressed with this instrument that I had Dr. Crowell order one made for me.

In doing prostatectomies I think the all-important thing to do is to save the mucous membrane of the urethra, for if you do not do this you are sure to have trouble in the after treatment of these cases.

Dr. A. J. Crowell, Charlotte: I don't know that I have anything further to say except with regard to age. In dealing with patients of advanced age, I never think so much about the age as the condition of the patient. If we can get our patient in good shape I don't think we need expect anything other than the patient will get well following the operation. We have operated upon some very serious cases lately, or at least they come in in a very critical condition—with low phthalein output and high urea retention—but by persistent and prolonged preparation we were able to remove the gland and cure our patients. We have not turned down a single case. Yes, we did, in one instance, turn a man 91 years of age down. He was not very anxious for operation and we had no persuasive ability in this case. He had marked arterio-sclerosis and was generally in very bad shape. We have never turned down a case nor refused to operate upon a case outside of this one because of age.

FIG. 1. Illustrating the divisions of the areas for cross-firing the ray. In this manner the operative field, axilla, supra-clavicular region and mediastinum are given massive doses of the X-Ray.

FIG. 2. Side view, showing division of the areas.

FIG. 3. Showing area treated posteriorily.

THE VALUE OF RONTGEN-RAY THERAPY WITH SPECIAL REFERENCE TO POST-OPERATIVE RONTGEN TREATMENT OF CARCINOMA OF THE BREAST.

J. W. Squires, M.D., Rontgenologist at the Charlotte Sanatorium, Presbyterian Hospital, and Crowell Urological Clinic, Charlotte, N. C.

In presenting this paper we desire to state concisely the indications for the use of the X-Ray in superficial and deep therapy. We wish particularly to emphasize its absolute indication in the post-operative treatment of carcinoma of the breast. The satisfactory results obtained by röntgenization have been made possible by improvement in X-Ray apparatus and the advent of the Coolidge tube; the latter, in particular, has been most important in placing X-Ray therapy on a scientific basis. Since these factors have made röntgenization fairly easily controlled, the most important problem is the trained X-Ray man, who will conscientiously study, not only the best methods of applying the ray, but will be conservative in the selection of the cases, and willing to consult freely with the surgeon as to the advisability of using only X-Ray therapy or using a combination of X-Ray therapy and surgery.

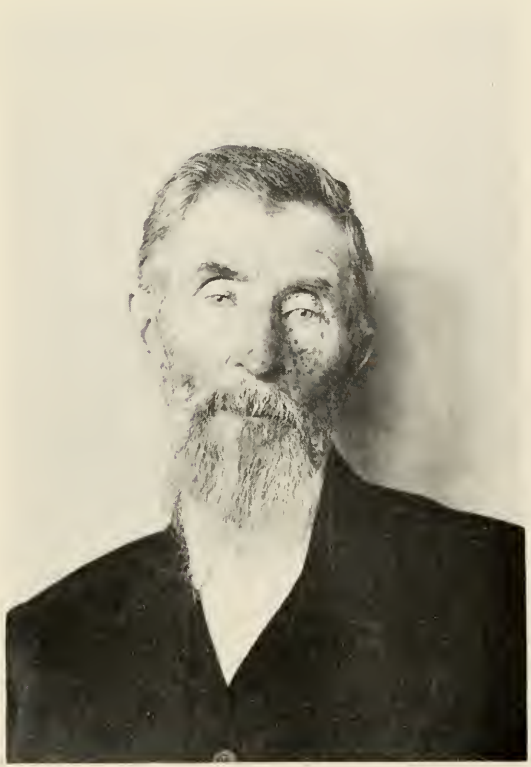
We also need our attention directed to the importance of selecting early the cases that will yield to X-Ray treatment, and insist on this being done rather than wait until the lesion has progressed so far that a mutilating surgical operation is deemed necessary, and then, probably too late to obtain a cure. In our clinic we have referred to us many cases of skin epithelioma which have been tampered with, and treated with plasters and irritants until they have passed almost beyond the curable stage, either by X-Ray or surgery. We hope if this paper does no further good, it will at least drive home the point that early attention to malignancy by X-Ray, surgery, or a combination of the two is the only hope for cure. In our immediate locality the physicians are now referring many cases of malignancy to us for X-Ray treatment. We endeavor in a conservative manner to select those cases that will be appropriate for X-Ray and treat them. Those that we feel should first have a radical operation we refer to the surgeon, and, if he thinks best, the patient is operated upon, and then post-operative X-Ray treatments are given as a prophylactic. By coöperating in this manner with the surgeon, it has been a source of satisfaction to see an increase in the number of malignant cases that we have treated with beneficial results.

The superficial epithelioma, that is, those having a tendency to extend out from the skin, and those that extend only a short distance beneath the skin, in the writer's experience, can all be cured by röntgenization. This statement is supported by Holding, who asserts that the prognosis in this type of epithelioma is 100 per cent. good, and that they can be cured by physical methods, without surgery, pain, hemorrhage, opening up the lymph channel, danger of infection, implantation of malignant cells, or hospital confinement, and with the best cosmetic results. As to the therapeutic methods, he claims these cases should not be treated by cutting operations. The physical methods indicated in the order of their preference are: (a) Massive doses of Röntgen rays; (b) dessication; (c) radium; (d) destructive caustics, provided the more expensive equipments are not available.

Those cases of malignancy that extend a considerable distance in the underlying structures, we refer to the surgeon, and, after the lesion has been removed, massive doses of the X-Ray are given over the site of the operative field. By cross-firing, the doses are directed in the course of the lymphatics, draining the area involved. By following this technique, we have reason to believe that the percentage of recurrent malignancy can be considerably reduced. However, assuming that no post-operative rayings were given, it is conceded that some of these would not have recurred. Yet we have observed recurrent malignancy in so many cases not given the prophylactic X-Ray treatment, that we are convinced every case should be given the advantage of these treatments.

In malignancy of the mammary gland it is also highly desirable to employ every method possible to prevent recurrence, and it is a source of satisfaction to know that röntgenization is materially reducing its frequency. In our work, the five-year limit of time has not elapsed, but symptomatically the results so far give evidence to justify the opinion that post-operative röntgenization of the mammary gland is very effective. The treatment should be applied within a few days after operation and before recurrence. This is the logical time to apply the prophylactic röntgenization, because it is much easier to destroy a few cancerous cells immediately after operation rather than wait until these cells have increased in large numbers or metastasis has occurred in the axilla. Dachtler reports sixty-three cases treated by röntgenization, following radical operation for cancer of the breast, and also a number of inoperable cases with skin involvement, for the palliative results. Twenty-nine of these cases have passed the five-year limit, the other 34 have not yet passed that period; hence will not be considered. Of the twenty-nine cases that had passed the five-year limit, sixteen did not show microscopic evidence of axillary involve-

Epithelioma of Nose.



Same Case After One X-Ray Treatment.

Epithelioma Involving Slightly Lower Eyelid.

Same Case After Four X-Ray Treatments.

Epithelioma of Face.

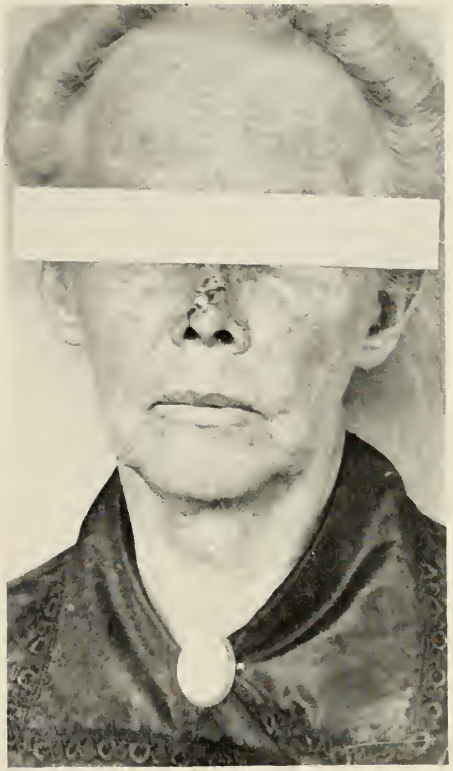
Same Case After Three X-Ray Treatments.

Epithelioma of the Ear.

Same Case After Three X-Ray Treatments.

Epithelioma of Nose.

Same Case After Two X-Ray Treatments.



Epithelioma of Nose.

Same Case After Four X-Ray Treatments.

Epithelioma of Abdomen.

Same Case After Two X-Ray Treatments.

Chronic Eczema of Leg.

Same Case After Two X-Ray Treatments.

ment at the operation. The remaining thirteen cases had marked axillary involvement. Of these thirteen cases showing glandular involvement, twelve died. Of the sixteen favorable cases with no axillary involvement thirteen are alive and well five years after treatment. The three patients died from other diseases before sufficient time had elapsed to perfect a cure. Dachtler concludes that his series is too small to use for accurate statistics, yet they are of value in estimating the advisability of post-operative X-Ray treatment in cancer of the breast. Of his sixteen cases showing no axillary glandular involvement at operation, thirteen, or 81 per cent, are alive and well after five years. Excluding the doubtful cases who died before the five-year period had elapsed, but who were found at autopsy to be free from cancerous disease, the percentage of cures reaches one hundred per cent. Dachtler asserts while the percentage of cures following radical operation in which no glandular involvement is demonstrated is high, yet the percentage of cures is not as high as in the series he reports, in which post-operative röntgenization was given. Another notable observation in Dachtler's cases is, that in recurrent cases the non-treated areas without exception showed the first signs of metastatic disease.

Our cases, in which X-Ray treatment was begun immediately after operation, have so far shown no recurrence. However, sufficient time has not elapsed to determine the ultimate result of the treatment. In two untreated post-operative cases with slight recurrence, rayings were given after the second operation and no further recurrence has been detected. Both of these cases have gone a year since the last treatment. All of our cases were given massive doses of the ray through a number of ports of entry. To see the diminishing numbers of recurrent cancer of the breast as a result of this plan of treatment should encourage and stimulate our surgeons to adopt röntgenization as a routine post-operative procedure in all cases.

This paper would also be incomplete without calling attention to the beneficial action of the X-Ray on the glands of internal secretion. Schwarz, Pfahler and Thrush, Stegman, Florence Stoney, and others have shown that röntgenization of the thyroid and thymus gland is of decided value; and as a result of this method of treatment, they report cases of exophthalmic goiter that have been apparently cured or markedly benefited. Pfahler lays down the rule that a trial treatment of exophthalmic goiter for one series with an interval of waiting for one month is advisable in all cases; for if an operation is decided upon nothing is lost, and many operations, in this way, can be avoided. He also says, as a rule in the treatment of exophthalmic goiter, the first

noticeable action of the X-Ray on the patient is an increase in weight and a decrease in pulse, the goiter being last to show improvement, and in many cases shows no change. Pfahler emphasizes the fact that treatment must not be prolonged over a great period of time, or hyperthyroidism may be produced. In all cases of exophthalmic goiter, it is recommended that the thymus gland should be treated at the same time. The X-Ray treatment of the enlarged thymus results in a most decided and prompt atrophy of the gland. Nordmann's investigations have proven that there is an intimate relation existing between exophthalmic goiter and hypertrophy of the thymus gland. In fact the sudden deaths from goiter operations, in Nordmann's cases, were all attributed to hypertrophy and hypersecretion of the thymus, which condition was not suspected until postmortem.

Also röntgenization for the cure of uterine fibroids and for the control of uterine hemorrhage is indicated in selected cases. By controlling hemorrhage in this manner the patients are given a chance to improve their general physical condition, and later, after gaining sufficient strength, can undergo an operation with a reasonable degree of safety. In one of the writer's cases of fibroid tumor, treated by röntgenization, there resulted a rapid diminution in the size of the tumor, the pressure symptoms cleared up, and the patient was completely relieved of all discomfort. Examination of this case by a gynecologist, showed that the tumor had disappeared with the exception of the fibrous residue. Another case, in which the treatment has not been completed, the tumor was reduced considerably in size. At this time the work of Pfahler, Gauss and Kronig has proven conclusively that röntgenotherapy can cure uterine fibroid and control uterine hemorrhage. However, it is our opinion that operative procedure should be recommended for this condition, unless there are present certain contra-indications, such as marked organic heart disease, nephritis, diabetes mellitus, advanced tuberculosis, and goiter with cardiac symptoms. And even in these cases, röntgenization will improve the general condition of the patient, and possibly result eventually in sufficient physical improvement to justify operative procedure.

In presenting these facts concerning röntgenotherapy, we have attempted to call attention to the value of the X-Ray, its usefulness, as well as its limitations. We have particularly emphasized the fact that by close coöperation of the röntgenologist, surgeon, and general practitioner, we can obtain better results than by following our own individual ideas as to what treatment would be most appropriate.

DISCUSSION.

Dr. J. F. Highsmith, Fayetteville: I am not an X-Ray enthusiast, but I can well see that Dr. Squires has given you the practical results of his actual experience. We have seen patients with epithelioma conditions about the face, relieved by heavy doses of the X-Ray; and it is certainly a great help in the treatment of this disease. Another thing that occurred to me while Dr. Squires was reading his paper was that it would be a good idea and plan of treatment, after every case of radical operation for carcinoma, to make a routine of the X-Ray exposures. I would like to know if Dr. Squires thinks this advisable in these cases.

Some years ago, when the X-Ray had first come out and they had first commenced to use it along that line after operations for carcinoma, great stress was laid on the X-Ray and the influences it had over the lymphatic system, especially in younger women with carcinoma. Even where the disease had developed so much that operation was illadvised, good results were gotten from the X-Ray exposures. I have used X-Ray in these cases with satisfaction, but recently we have grown a little negligent in its use. Personally I think I shall make it a routine hereafter.

DIVERTICULITIS—REPORT OF A CASE TRAUMATIC IN ORIGIN.

Ben F. Royal, M.D., Morehead City, N. C.

Diverticulae of the intestinal tract are relatively common and may be of either of two types—acquired or congenital. They may involve either the large or small gut.

Diverticulae of the large gut are commonest in the region of the cecum and sigmoid. The section of small gut most frequently involved is the last thirty-six inches of the ileum, the so-called Meckel's diverticulum. A diverticulum may be acquired from any cause which weakens the circular muscular layer of the gut, allowing a protrusion of the underlying submucosa and mucous coat; or, in the large gut, constipation with its consequent straining at stool may produce it. In this type of case it is possible for the diverticulum to possess all of the coats of the neighboring intestine. The congenital form is decidedly the most common and consists uniformly of all the tunics of the bowel, it being merely a sacculation of the bowel with a more or less constricted neck where the sacculation leaves the main bowel trunk.

Some anatomists believe Meckel's diverticulum—the form under discussion—to be present in from one per cent. to two per cent. of cases, while others think these figures too high. Be the frequency of the condition as it may, the fact remains that in a certain proportion of cases Meckel's diverticulum does exist and is subject to disease and injury, and its very rarity is a frequent cause for its non-recognition and, as a result, an occasional mistaken diagnosis.

From the standpoint of etiology the commonest noted factor is that of indigestion; whether it stands as cause or effect I am uncertain.

Males seemed to be more frequently attacked than females in the proportion of about three to one. Typhoid perforation has occurred several times; possibly as high as six per cent. in one series of cases. Tubercular ulceration, foreign bodies such as apple seed, cherry stone, coproliths, and the like, and even sharp particles such as fish bones have been noted. Two cases have been recorded where worms were the causative factor in the inflammation, and among the rarest of all causes is trauma.

The pathology naturally varies with the etiologic factor and with the time the factor has been operating. Anything from a mild low grade inflammation to a fulminating peritonitis in the presence of gangrene or perforation may be encountered. The symptomatology varies with the pathology. Certain classifications of the disease have been made, the most satisfactory to my mind being that of Van Hook. His classification is as follows:

1. Fulminating (with previous history—without previous history.)
2. Subacute.
3. Chronic.

The fulminating type comes on suddenly like any acute abdominal crisis and is, in its early stages, impossible of differentiation from other similar lesions. A torsion of the diverticulum gives the history, symptoms and signs of acute appendicitis in all save the location of the lesion. To this picture is soon added those of intestinal obstruction, either from twisting or kinking of the gut or a paralytic ileus. If perforation occurs the signs and symptoms of peritonitis supervene.

Instead of the fulminating type, cases are seen of less severity. Intead of the general peritonitis with its distressing symptoms, certain cases end in a localized infection about the diverticulum. These may become walled off by adhesions, and in certain cases end here. In others an abscess may form and rupture into the bowel lumen or, as in one case, into the bladder. In these cases the signs are much the same as in a subacute appendicitis.

Chronic Type. In about one-quarter of the cases reported the patients had complained of previous gastro-intestinal symptoms, often constipation and indefinite pain in the right paraumbilical region. This picture is made complete by intermittent attacks of acute pain and tenderness corresponding with exacerbations of the local inflammation and paralytic ileus, or temporary strangulation of the diverticulum.

Owing to the absence of any cardinal symptoms the diagnosis from the first is largely differential, appendicitis and intestinal obstruction being the lesions most closely simulated. The signs which should attract the attention of the surgeon are (1) The localization of the tenderness above and inside of McBurney's point, or even in the median line below the umbilicus; (2) rigidity in the same region; (3) presence of blood in the stool, often only microscopic; (4) the existence of an umbilical fistula or other congenital malformation. These signs are not at all typical and might easily be present in an aberrant appendix.

Between an intestinal obstruction and an inflamed diverticulum the diagnosis is difficult. On the one hand we have the evidence of obstruction most marked, and on the other those of an intra-abdominal inflammation with the localized tenderness, temperature, elevation, and rigidity.

The prognosis, owing to the late diagnosis, has been bad. Slightly more than fifty per cent. of the operated cases have recovered.

The treatment is that of any acute intra-abdominal crisis. The abdomen should be opened and the lesion found treated according to surgical principles.

The case I wish to call to your attention is that of a woman, Mrs. H., age fifty. Her family history is uneventful. She had about all the usual diseases of childhood, and from the time she was seventeen until she was twenty-one she had attacks of rheumatism of her right ankle, which at frequent intervals completely incapacitated her. She was married at twenty and before she was thirty had given birth to five children. All were born at full term, yet all died within one hour of birth. She sustained a third degree laceration at her first confinement, which was repaired after the birth of her third child.

About eleven years ago she had her first attack of abdominal pain. This pain was low down in the abdomen and slightly to the left of the median line. The pain was not so severe during the first attack as to completely incapacitate her, but they recurred at irregular intervals for the next two years, with varying severity, and on two occasions with sufficient severity to confine her to bed.

One point about these attacks that attracted the patient's attention was the fact that the point of maximum tenderness was not always at

the same point. Two years after the onset of her trouble and immediately following an attack of more than usual severity, the patient was admitted to one of the South's leading hospitals, where, according to the patient's account, her "womb was scraped." This gave no relief, and one year later in the same city, though in another hospital, she had an operation for hemorrhoids. This failed to cause a disappearance of her symptoms, and three years later (or five years ago) she returned to the hospital of her first choice, where she was again subjected to operation.

The hospital authorities were good enough to send me a copy of her hospital card, which showed that a diagnosis of endometritis, salpingitis and hematoma of the right tube was made. The operation performed was double salpingectomy and right ovariectomy. The pelvis was drained. The surgeon who sent me the hospital card—than whom there is no better in the South—said that he had made the following note upon his personal records at the time of discharge: "A decided neurotic complaining of pain still at discharge."

The patient first consulted me in March, 1913. Her presenting symptom was the pain in the lower abdomen, which at times became cramplike and colicky—the same pain that had been present at times for eleven years.

I advised an exploratory laparotomy, which she very promptly and emphatically refused. Two years later I was called to see the woman, and obtained the history that twenty-four hours previously while seated in a chair a child, in running toward her, tripped over a rug and fell toward her and with its outstretched hands struck her just below the umbilicus with the full force of the child's falling body. A few hours after this accident the abdomen became painful and the pain and tenderness rapidly increased until, at the time of my examination, the weight of the bed clothes could not be tolerated. Temperature was one hundred, pulse ninety, and abdomen rigid. The patient was removed to the hospital and prepared for operation and her abdomen opened.

Immediately upon opening the abdomen, which was done by resecting the scar from the previous operation, it was discovered that the omentum was adherent to the scar line. These adhesions were separated and the omentum displaced upward and there came into view a red, congested and very much inflamed Meckel's diverticulum. The diverticulum was two inches long by one and one-half inches wide at its widest point, with a much constricted neck. This was removed and the abdomen further explored with negative findings. Examination showed the diverticulum to be from the terminal ileum about fifteen inches from the caecum.

The patient remained in the hospital two weeks and made an uneventful recovery. It has been more than two years now since her discharge from the hospital and, except for an attack of articular rheumatism, she has been perfectly well since leaving.

There are two points that I wish to emphasize in connection with this condition. The first concerns symptomatology and is not mentioned in any article that I have been able to find. I refer to the fact that in repeated attacks the point of maximum tenderness is a variable point. Not only does it vary in different attacks, but at different times during the same attack. This, I take it, is accounted for by the fact that the diverticulum springs from a movable portion of the gut in contradistinction to the appendix, which arises from a more or less fixed portion.

The second point that I wish to emphasize pertains to treatment. Every man who does much surgery occasionally makes a diagnosis of appendicitis and opens the abdomen only to find an appendix that is, to all gross appearance at least, absolutely normal—an appendix whose gross pathology fails absolutely to account for the symptoms presented. It is my opinion that if all such cases were carefully examined for diverticulae, in a certain proportion of cases at least a pathological condition would be found that would not only be more satisfying to the surgeon than a diagnosis of catarrhal appendicitis, but a condition which when corrected would take from the patient his chain of distressing symptoms and leave him well.

DISCUSSION.

Dr. Ben F. Royal, Morehead City: I have nothing further to add except to state that it is my opinion if all abdominal cases were examined routinely for diverticulae many more cases would be discovered. I believe that quite a few of the vague abdominal cases that we diagnose appendicitis are in reality cases of diverticulitis.

In taking the history of the case just reported I was particularly struck by the fact of the movability of the point of maximum tenderness, and I was anxious to know if the surgeons of wide experience had observed the same point in diverticulitis cases.

In conclusion, let me urge upon you that when you open an abdomen to confirm a diagnosis of some acute condition in or about the right iliac fossa, don't merely examine the appendix and tube, but be certain that there is not present an inflamed diverticulum.

TREATMENT OF ABSCESSED APPENDIX.

EUGENE B. GLENN, M.D., ASHEVILLE, N. C.

My attempt to discuss this subject, to me seems presumptuous, in the presence of so many able surgeons who have definite methods of their own, all of them good. But I feel that I will be repaid for the effort if the subject elicits a free discussion and brings out many good points that you, in your experience, have found valuable. I have nothing new to add to the subject, but wish to stress, later, a principle of drainage and a retention stitch, which have served me most satisfactorily in drainage and final closure of the abdominal wall.

The relief of pus tension is the first surgical step toward retarding absorption in all acute infections. The reduction of tension must be initial and the absence of pressure continuous. In every position in the body where a virulent pus-cavity has been opened and there has resulted a lowered temperature or a disappearance of fever, the toxic manifestations again arise when the pus becomes retained under pressure.

These principles are axiomatic in the management of acute infections in any part of the body. True, the peritoneum has great resistance against bacterial invasion and can care for a larger quantity of mildly virulent products without drainage, but if the tension on these products is restored and they are virulent, death after operation will occur on the same basis as preceding operation. Therefore, the continuation of the drainage is vital in the virulent cases, and will save many lives. The peritoneum should continue to be treated in these particulars on the same basis as infections in other portions of the body. We do not wash, scrub, knead, or traumatize osseous or cellular phlegmonus cavities. The advice of an eminent surgeon half a century ago, "Do not milk an abscess," was admirable, and is applicable to the handling of any part of the peritoneum.

The manner of going through the abdominal wall is of little moment, and depends upon the individual operator's custom. I find it a good rule to make the incision on the median side of the highest point of the abscess, so as to open the free peritoneal and not the pus-cavity. By this means one is able to outline the extent of the infection and the condition of the peritoneum beyond the line of suppuration. Example: if the abscess has ruptured in the free peritoneum during the preparation for the operation, the accident will at once be recognized and the necessary drainage be instituted; whereas, if the incision had been made

into the abscess, the pus in the free peritoneum would not be recognized and might lead to a fatal termination, as has happened in cases where this safeguard has not been taken.

The intestines should be walled off with gauze packing, so as to entirely circumscribe the field. After opening the peritoneum and recognizing the abscess, agglutinations of the abscess wall should then be separated by the fingers, sufficient pus removed to permit inspection of the cavity, and if easily recognized, or if not more than four days have elapsed since the onset of the disease, the appendix should be searched for and removed. After five days, the adhesions are vascular, and when separated, leave absorbing surfaces, differing from the early conditions of simple agglutination without vascularization, but with infiltration and local immunity.

Oftentimes after the appendix has been located it is difficult to bring it into the field of operation. In these cases the mesentery should be ligated and the appendix clamped and ligated in the groove produced by the clamp, omitting the invagination.

Where there is much infiltration, Lembert sutures are impracticable, if not impossible. The inflammatory infiltration hastens the union, and fecal fistula rarely results. I have found it an advantage to pass a hemostat through the meso-appendix, near the caput coli and base of the appendix, then drawing a piece of tape through with it used as a leverage, work from the base to the tip of the appendix.

After four days have elapsed, the appendix being deeply imbedded and difficult to locate or remove, it should be permitted to remain, the abscess being simply drained. A great many lives are sacrificed by both experienced and inexperienced operators by making excessively extensive operations, that they may feel that they have made a "one-sitting complete operation." This is often hazardous in the extreme to the patient, complimentary to the surgeon's courage, but derogatory to his judgment. The patient should be conducted to a cure with the least possible hazard to his life, regardless of the personal likes and dislikes of the surgeon.

Numerous other incisions are advocated for this condition, but they have no special advantage, and lack many of the good points of the one above mentioned. If we could always be sure that there is no recent leak in the peritoneal cavity, an incision over the abscess in these cases where the abscess is pointed and has become adherent to the anterior or lateral wall, would be the one of election. When the point of incision over the abscess is selected, as we cut through the parietes, edema of the tissues may be noticed. If any part of the wound shows more evi-

dence of edema than another, you may be sure that pus is not far distant, and that the edematous tissues will act as a guide to it. When the abscess is reached, it must be opened with care. For this purpose, blunt dissection or scratching with a director is safe, not forgetting the danger of opening into some adherent intestine. A small opening should be made into the abscess first by blunt force, enlarging by the same force. Enlarging the opening into the abscess by means of cutting with scissors or knife is improper. Many careful surgeons end the operation at this stage, contenting themselves with the introduction of drainage tubes. Others explore the abscess cavity with the fingers to remove fecal concretions or find the appendix. When the appendix has sloughed and lies in free pus, great care must be taken to avoid breaking down any protecting adhesions. If the appendix is found attached to the cecum and can be isolated without too great danger, it should be removed and its stump treated in the manner already described. A few operators yet insist that the appendix should always be removed, but to the writer, this appears an eminently unsafe doctrine. If the appendix has not been removed when the abscess was opened, it ought to be sought and extirpated soon after recovery. It has been dogmatically stated that the appendix is absolutely destroyed in the vast majority of cases in which abscess has formed. But one observer states that he finds that in 90 per cent. of incidences the appendix is not destroyed, but soon recovers after its contents have discharged by sloughing or perforation.

The foregoing description of operation when large abscess is present presupposes the possibility of gaining access to the abscess without opening the peritoneal cavity. But frequently an abscess forms, surrounded by adherent intestines, omemtum, and a great mass of exudate, that is not adherent to the anterior wall. In such cases the relations of the tumor are discovered by the finger used with the utmost delicacy, the peritoneal cavity having been previously most carefully and thoroughly protected by gauze pads. The opening of the abscess should not be large at first, or the whole wound and packing would be flooded with pus. It is desirable that the pus escape slowly, so that it can be wiped away with a gauze. The pus having been removed, the opening into the abscess may be enlarged and the interior cleaned out as well as possible with moist gauze. Then if the appendix is easily found, it should be removed.

The entire technique should be completed in a very few minutes, as was once said by the eminent surgeon, Murphy, "Get in quick, get out

quicker." If the anesthesia is prolonged, manipulations great, sponging and flushing excessive, the patient leaves the table with a feeble capillary circulation and does not rally.

Pus tension is maintained by drainage tubes. The pus discharges by the tubes for many days in some cases, and only a short time in others. The tube does not become rapidly circumscribed by agglutinations, if the pus is virulent, notwithstanding some of the recent teachings based on animal experiments. I never use fenestrated tubing, but instead, use three medium-sized gauze drains, covered with rubber tissue. I always place three together, particularly where there has been any leaking in the peritoneal cavity.

We know that the gauze wick in the drain soon becomes of no use, but the three together permit the drainage by capillary attraction, and prevent agglutination around the outer side of the tube, which interferes with drainage. I take the three tubes clamped between the jaws of long forceps and pass them down to the bottom of the space to be drained, one safety pin is passed through the end of the three, at outer end. I pass another set of three upward, if necessary, in the same manner. And wherever I place one drainage tube, I place three, side by side. The day after the operation I pull gently on end of tubes, so as to free any agglutination. One of the tubes is pulled farther out than the remaining two and the end cut off, then the safety pin is replaced. The second day I remove one of the tubes of each set entirely. Then each day that I dress the case thereafter, the two remaining tubes are gradually withdrawn. After placing my drainage at the time of operation, I then remove the gauze packing, stitch the upper and lower angles of the peritoneum separately with catgut. The upper and lower angles of the aponeurosis are also stitched with catgut. Then with silk-worm-gut, I close the skin, allowing one or two stitches at each angle to pass through the aponeurosis, without tension. I place what should be called a retention stitch, or after-closure stitch, in the middle of the incision, of silk-worm-gut, first going down through the skin, the aponeurosis, and peritoneum, well away from the margin of incision, then out on the other side in the same manner, from below upward. A loop of this stitch is made by tying the two ends together, and is allowed to remain loose until all drainage has ceased and I feel sure that the wound can be closed safely, after granulations are well advanced. Then this retention stitch is tied with moderate tension, drawing the margins of the aponeurosis closely together. I have been using this technique of

drainage and closure in more than a hundred cases, and I have never had a post-operative hernia or an abscess from too early a closure of the wound, or from the retention stitch.

The principles governing the technique of erratically placed appendical abscesses are practically the same as above, except when the abscess is deep in the pelvis in the female, when it may be drained through the posterior fornix, or when it is perinephritic on the right side it may be drained through the loin. When they are subphrenic, they should be drained through the peritoneal cavity, beneath the costal arch, and never through the pleura, except where the pus is already in the free pleural cavity.

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PURGATION MEANS PERFORATION.*

Thaddeus E. Wilkerson, B.S., M.D., Raleigh, N. C.

Fifty-two cases of ruptured appendices during the year 1916, on the service of Dr. H. A. Royster, invite the writing of this paper.

For the past ten years the pendulum has swung in the direction of surgical treatment for the relief of acute appendicitis, until at the present time the consensus of opinion is that procrastination should be abolished and that surgical aid should be obtained as early as possible. Granting this to be true, there still exists a space of time between the onset of the attack and the operating table which often decides the post-operative result. For it is during this period that the family physician too frequently converts a simple acute appendix into an appendix that is perforated, giving rise to peritonitis and its sequelae.

The seriousness of acute appendicitis is always increased or decreased in proportion to the line of treatment during these first few hours or days of the attack. It is here in the early stage of the disease that the family doctor has the first opportunity to determine what the results will be in the end, and he either handles the case safely by bringing into play his "masterly inactivity" or he feels that he is called upon to assist nature by giving full doses of purgatives. To him the symptoms of general abdominal pain, at times excruciating, associated with nausea and vomiting, some rigidity of the abdominal muscles, slight accelera-

*Read by Dr. H. A Royster with permission.

tion of the pulse with 100 to 101 temperature, either means that he must help nature eliminate a package of peanuts which the patient has recently eaten by administering full doses of every known purgative from postpartum pills to Pluto water, or he places the proper interpretation on these symptoms and reads them as danger signals, warning him to keep his hands off. When he chooses his weapons according to the first course of procedure he antagonizes nature by putting the decreasing peristalsis of the gastro-intestinal tract on the run, often aiding the effects of his purgatives with food and drink. Then it is that the appendix, which is quiet, swollen, and inflamed, is attacked with formidable line plunges of peristaltic waves, causing nature to cease its work and to watch wave after wave attack its breastworks, until finally it can stand no more and nature's fortifications are blown to pieces by her own supposed-to-be assistant.

There is another phase of this subject which brings in those outside the profession, namely the laity. In about one-fourth of the cases the purgatives have already been given before the doctor is sent for. As an explanation of this they will tell you: "The first thing our doctor does is to thoroughly clean out the bowels, so we thought we would do this and then call him later, if necessary." To avoid this in the future I would advocate that every child of school age in North Carolina be taught that purgation for the relief of acute abdominal symptoms is a dangerous procedure.

I will give here the report of four or five cases taken from this series to illustrate the line of treatment that was followed. The symptoms in these cases are not those the patient had on admission to the hospital, but the symptoms that were present when first seen by the physician who referred the case.

Case 1. Female, age 14. On the morning of August 15, 1916, this patient was taken sick with general abdominal pain, nausea, and vomiting. Her physician was called in on the afternoon of the same day and prescribed the following treatment: calomel, grain one every hour for ten doses, to be followed by magnesium sulphate, one ounce every two hours for six doses. Patient admitted to hospital three days later. Immediate operation. Appendix was found ruptured and the pelvic cavity was filled with pus.

Case 2. Male, age 15. This patient gave a history of previous attacks of abdominal colic. On September 20, 1916, he was seized with violent abdominal pains, nausea, and vomiting, tenderness and soreness of the abdomen, slight rise of temperature. Three physicians were called in to consult over this patient, and the following treatment was prescribed: calomel, grains 4, magnesium sulphate, ounces 4, in divided doses. At operation the appendix was found ruptured with free pus in the abdominal cavity.

Case 3. Male, age 16. History of attacks of abdominal colic for the past two years, more frequent during the past six months. Present attack began

April 18, 1916, with general abdominal pain, nausea, and vomiting. In a few hours the pain and tenderness had localized in the right side. The following purgatives were prescribed by his physician in succession: liver regulator, one ounce, calomel, grains six, magnesium sulphate, one ounce and a half, rhubarb, ounces four. Patient was operated on immediately after his admission to the hospital. Ruptured appendix was found with the pelvic cavity filled with pus along with free pus in the abdominal cavity.

Case 4. Male, age 40. History of indigestion for the past ten years; attacks of abdominal colic for the past two years. Present attack began April 15, 1916, with abdominal pain, nausea, and vomiting, pain and tenderness, localizing in right side in a few hours. Patient took a glassful of castor oil, and on the following day sent for his doctor. His physician diagnosed the case as one of ruptured appendix, and brought the patient to the hospital at once. The doctor's diagnosis was confirmed at the operation.

These few cases will give you an insight into the line of treatment that was carried out in this series between the onset of the attack and the operating table.

Now you ask, what shall we do in these cases? To speak frankly, I would say "hands off." But if you feel that you must do something to satisfy the minds of the family and friends, then give nothing by mouth, place an ice cap over the appendiceal area and empty the rectum with a small, simple enema. In case the vomiting continues and is severe, gastric lavage may be given.

In conclusion I will say that we have learned from living pathology that in acute appendicitis "purgation" means "perforation" and the time has arrived for nature's assistant, the purgative, to pass into oblivion.

DISCUSSION.

Dr. L. A. Crowell, Lincolnton: I have certainly enjoyed Dr. Royster's paper. It presents a very interesting phase of this subejct to me. In an acute case of appendicitis, why a medical man will hold the case three or four days to a week before referring it to a surgeon I cannot tell, when we all know that we are dealing with a surgical and not a medical condition. The misinterpretation of the Ochsner treatment of appendicitis has caused more deaths than the author of the treatment, with all his ability, has been able to save. I do not know what prognosis of appendicitis is, but I do believe if every case were treated properly by surgery as soon as the diagnosis was made that very few, if any, of the cases would die. When a physician is called in to see a case that presents any of the symptoms of appendicitis he should use all the means at his command to clear up the diagnosis at the earliest possible moment. I enjoyed Dr. Wilkerson's paper very much.

Dr. W. D. McLelland, Mooresville: I think that Drs. Glenn and Royster have given us most excellent papers upon their subject. But as Dr. Royster's paper, "Purgation Means Perforation," is of so much importance, both to physician and patient, I think this most excellent paper should have been read before our medical section, for as a matter of fact, this unfortunate purging of appendicitis occurs, either before the physician has been called or while the patient is under his care, and I feel that it is truly the duty of the surgeon who sees the unfortunate results so plainly to emphasize them upon the minds of his brother physicians at every opportunity, and that in return it is truly the duty of physicians to emphasize them on the minds of their patients.

In this connection I would like to call attention to the danger of relieving the pain of appendicitis before the positive diagnosis is reached or before the patient has consented to an operation, and thereby improperly delaying operation sufficiently long for pus formation, with all of its unfortunate sequelae, and this I will illustrate with a case which came under my observation a few days ago. At eleven p. m. the patient, who was subject to colic, was suddenly seized with abdominal pain and nausea and, after usual remedies for relief failed, the physician was called. The case looked so much like appendicitis that he advised a removal to the hospital at once. This the patient refused and to quote her own words: "Doctor, I have nothing but the colic, which I have had many times before, and if you will only give me something to relieve my pain I will be all right in a few hours." He refused to do this, but advised an enema with hot application. Later on in the day, the pain not being relieved, another physician was called to the case, who in turn also refused to relieve her pain with drugs. The patient, after suffering for twenty-four hours, consented to go to the hospital. Upon immediate operation the appendix was found red and swollen and contained pus. Now, in this case, had the pain been relieved by drugs, this patient never would have consented to so early operation. And had an early operation not been performed on this case, or had she been given a purgative, you can easily imagine what the result would have been.

Dr. Glenn's most interesting and instructing paper rather applies to surgical technique and is of most interest to the operating surgeon, and as I am not a surgeon, I will not comment upon it further.

PUBLIC HEALTH AND EDUCATION

SOME PHASES OF RURAL SANITATION.

B. E. Washburn, M.D., Wilson, N. C.

Rural Sanitation is the largest and most important public health problem in North Carolina today because it is a problem which affects more than 80 per cent. of the citizens of the State. And like all the fundamental problems of public health work, rural sanitation is educational in nature. It is the problem of presenting the facts of modern medicine and sanitation to the rural homes and communities and showing concretely the ways in which these facts can be applied in each home so that every citizen and every family and every community may receive their benefit. Practically, at the present stage of sanitary development, rural sanitation means the provision at each home of a proper method of disposing the excrement from the human bowel and an unpolluted water supply, together with proper means of combating flies and mosquitoes.

The problem, then, is to reach each and every family and educate them to see the necessity of sanitary protection, at the same time demonstrating the best methods of securing this protection. And, at this point, it may be interesting to note some of the difficulties that are encountered by rural sanitary workers, before discussing the best methods of obtaining the desired results. First and foremost, many citizens in every rural community are averse to put aside the fallacies concerning health and disease and medicine which they have believed and heard all of their lives and take up the new and complicated and, to them, often obscure teachings of modern medicine. In every rural section there are many people who do not know anything at all regarding the nature and spread of infectious diseases. They still believe religiously the theories that were beginning to be discarded in scientific circles twenty-five years ago. Any one who discusses these subjects before rural lay audiences is forcibly struck and often amazed to find that the most refined and educated people still believe, concerning public health, almost the same things that the most ignorant hold. For instance, many people in rural North Carolina and in our towns, for that matter,

believe that a gold wedding ring rubbed on the eye will cure a sty; that ear-rings improve sight and that a bronze finger-ring (if exploited in glowing terms by a health fakir and sold at a high price) will cure rheumatism. Then, there are those who believe that tuberculosis is hereditary, and that the smell from a horse stable will cure consumption. Others believe that the infectious diseases of children are inevitable, that children *ought* to have them to make them grow, and that the younger they have them the better. Red flannel (it must always be *red*) is thought to be good for sore throats—and especially so if it is used in connection with some high smelling, aromatic salve prepared by patent medicine houses. To many, backache always indicates kidney trouble, cancers have roots like trees and the roots can be drawn out with the cancer if proper care is exercised. Malaria is always due to night air and typhoid to decayed leaves in the drinking water. Many who have never had smallpox believe the disease to be much less severe than vaccination. Among our best and more intelligent families, who should know better, there is the belief that there is absolutely no danger of infection from a sick child until the doctor pronounces exactly what the particular disease is. Then, of course, nearly everybody (and this is not confined to North Carolina) believes that whiskey is good for pretty near every ailment the flesh is heir to.

So long as this jumble of pure myth, current tradition, childhood misunderstandings carried over unconsciously into the serious repertoire of adult conceptions, control and form the basis of procedure for the public health thought and action of our citizenship; or, until by education these absurdities are definitely combated and eliminated, just so long will the teaching of the truth be retarded.

Then, again, the rural health worker in many sections of our State finds religious prejudice one of the chief problems he must consider before securing the coöperation of the people. Until one has had the actual experience it will be difficult for him to believe that human beings exist in North Carolina whose lives are absolutely bound and restricted by ideas of fatalism and predestination. There are many people and many families who hold this so thoroughly that they do not believe in medicine and will not even send for a physician in case of serious illness. These people, as the saying goes, believe that "what is to be will be, whether it ever happens or not." They conceive of God as some great, unseen, avenging power, who delights to come upon man unaware and smite him or his family with sickness or death as a punishment for some minor temporal sin. There are many people in North

Carolina who thus account for the infectious diseases of children and for the sickness and death with which they are often attended. Education is the only possible prescription for this class.

The third great drawback to rural sanitary work is procrastination. Our rural citizen is very prone to leave until tomorrow many of the things which should be done today. There are many reasons for this characteristic. It is inborn, in many cases. Poverty and disease and ignorance are also causes; and, in some counties, a large tenant population retards the work. Then, again, physicians and social workers and our better class of citizens—our educated families—do not themselves put into practice the things they preach and say they believe. In the majority of villages and rural sections of North Carolina, with the examples of sanitation and health as applied by the educated families and the indifference which these families show towards movements for the uplift of their communities, nothing better than what at present exists could be expected of the ignorant.

The details of the best practical solution of this problem have not yet been found but it must be educational. As is true of everything else, people will not appreciate sanitation or sanitary closets until they are shown the value of the one and the need of the other. It is my intention here, to point out in a brief manner, some of the things and some of the methods which I have found in my experience to be of value in the solution of the problem of rural sanitation.

To obtain actual and concrete results in any rural family or community, the family, or at least each householder of the community, must be reached and the facts regarding health and disease, as locally applied, must be presented to him in such a way as to make him understand exactly what is meant. It is here that the personality of the health worker is an important factor—the worker who gets the best results is always able to mingle with the people, gain their confidence and express himself in terms of their daily lives. More than talk must be done, however. An actual demonstration must be made. To tell a man about a sanitary privy is an entirely different and a much less important matter than going to his home and actually showing him how to construct the closet.

As a general rule, it is always best to first instruct communities and families regarding the importance of rural sanitation. Many people can be reached through public lectures given at schools and churches, and through public health literature, and microscopic demonstrations at schools. Everybody will not be reached in this way, however. Many cannot or will not attend lectures, while others cannot read. These can only be reached by a visit to their homes. The reports of our

Bureau of Vital Statistics show the importance of rural sanitation and the prevention of soil pollution. In many of our counties as high as 20 per cent. to 25 per cent. of deaths from all causes are due to this class of diseases, which include the infectious diarrheas of infants and young children, the dysenteries, typhoid fever, hookworm diseases, and probably some forms of tuberculosis. Now, everybody that gets sick doesn't die, but the deaths a community has is always an indication of the amount of sickness. A class of diseases or a problem which is responsible for so large an amount of sickness and so many deaths is, of necessity, an important problem and one which entails great economic loss. A study of the vital statistics in connection with the sanitary condition of any community if rightly presented can always be made interesting and impressive to landlords and tenants, even if they be of only ordinary intelligence. To be able to prove that proper home sanitation is economical and a great monetary investment is, at present, the best argument that can be presented.

We are also fortunate in being able to show that the teachings of sanitation and their application are not opposed to Biblical teachings but are sanctioned by the Bible and in full accord with it. Moses actually enforced more rigid sanitary regulations than are in general use in North Carolina today. Some of the things he advocated were strict quarantine laws and the complete isolation of all cases of infectious disease; he enforced rigid meat inspection, even requiring all cattle to be killed by bleeding, the method used in our largest packing-houses today; and he required the proper disposal, by burial, of the bowel discharges. These teachings are very impressive when rightly presented to the religiously inclined.

Then, too, to make a further use of the Bible, St. Paul says it is a man's duty to give his family the best care and protection it is possible for him to provide. He says, "A man who provides not for his own, even the members of his own household, is much worse than an infidel."

The old adage of not being able to teach an old dog new tricks is fully exemplified in rural sanitary work. It is very, very difficult to change the manner of living, the customs of an entire lifetime, in many of the old who have not had the advantages and opportunities given to our younger generations. It is with the young—the children of today who will be the householders and the citizens of tomorrow—that the best and most lasting results of health education can be obtained. I believe the most important work of any health officer is with this class and through the schools. More of the work recently done by Dr. Sevier in Buncombe County, through the teachers, should be carried on. Every

teachers' institute should include a course of lectures on health and hygiene, and some way should be devised of having these teachings taught and actually applied in the schools. Every grade, even the beginners, should be reached and the children should be taught to practice the things they have learned. For instance, the lower grades should be taught bodily cleanliness and the care of the teeth; and as the child advances he should gradually be made to apply other and more complicated health rules, just as fast as he is able to understand their necessity.

Then, the schoolhouse and its surroundings should be made models of what a sanitary and healthful home should be. For a child to attend a badly built, dirty and unsanitary school, located in the roughest and on the cheapest piece of land that a community can find; poorly lighted, improperly ventilated in summer, and with cracks and missing window panes in winter; no closets of any description, as is too often the case; and water from a shallow, open well, with bucket and chain and common drinking cup; will certainly not impress a child with the importance of applying in his home the ideal conditions he reads about and studies about in his sanitation and sociology. It is not the ignorant alone who must be taught the necessity of sanitation.

There is just one other thought, which is being expressed by Dr. Rankin, our State Health Officer: the problem of public health and sanitation is not only to increase the length of life but also to improve its quality. There is nothing—not even religion—which will improve the quality of life of an individual, a family, or a community so much as the application of the sanitary laws, and amidst the trials and tribulations of rural sanitary work the thought that he is improving the lives of the citizens and making the community a better place in which to live, should be very gratifying to the public health worker.

As I stated in beginning, no single method of doing rural sanitary work has yet been found. Each rural community is often a law unto itself and may require an entirely different program of work to that used in other communities. At present each rural health worker is using such methods as he has found to be effective; but it should always be remembered that we are all working toward the same end—the prevention of sickness and death—and each public health worker should be open-minded, should observe and study the methods of others in order that he may be able to select from all sources such methods as he will be able to apply in his community. There is certainly no hard and fast rule of rural sanitation, but the methods having the greatest educational value are undoubtedly the best to follow; and work aimed

at definite concrete problems, if it is well done, will always stand out as a demonstration of what can be accomplished and will have a larger educational value than a far greater amount of diffuse work covering many or all the health problems found in any community.

The State Board of Health is at present planning to coöperate with the counties of the State in a three year system of public health work with the object of establishing permanent health organizations in each county; and by health organization is meant a full-time Health Officer with proper equipment, and sufficient office and field assistance, and not the method of placing a single man in a county and expecting him, without assistance, to solve all the county's health problems. The more important health problems in each county will be taken up one at a time and dealt with in a definite manner. The problem of soil pollution will be dealt with by visiting each and every home, white and black, and giving individual instruction as to the best methods of constructing sanitary closets and improving the water supply.

The health officer who is going to obtain the best results in rural sanitation is the one who will be able to carry to our rural population the great facts and discoveries of modern medicine which affect most vitally their health, and who will be able to express these facts in terms of Community Life. And in order to accomplish this he must always keep abreast of the rapid advance of the science and art of sanitation, study the methods and accomplishments of others, and the manner of life of the community in which he lives. So much can be done through rural sanitation to better the living conditions of the communities in which we reside and work, and so much suffering can be averted and so many lives can be saved that the problem is well worth the serious consideration of every right-minded citizen, and especially of the medical profession.

DISCUSSION.

Dr. J. C. Braswell, Rocky Mount: It is impossible for me to add anything to this excellent paper just read by Dr. Washburn. There is one point that I would like to lay stress on, namely, the way in which we reach people in the rural sections. Dr. Washburn stated that there was no hard and fast rule for rural sanitation, that up to this time the various health officers throughout the country have not found any rule by which we can reach each and every community, and every community is a question unto itself, and it is up to the men to solve the problem. Personal experience has taught me that the two most important ways of reaching the people are by the churches and by the schools. If you first get the school board and then the school

teachers interested in this work you can carry these lessons home to the parents through the children, and then the last resort is to reach the older people by means of the churches, and this is especially true in regard to the colored people. In the eastern part of the State where Dr. Washburn has carried on a great deal of his work I think he has found this side of the question of much help. For the benefit of the men who are entering this work I would like to lay much stress upon this side of the work in regard to rural sanitation.

Dr. N. B. Adams, Murphy: I want to endorse what has been said, and add one thought that has been worth something to us in sanitary work in Cherokee County; that is, after having started the movement in the churches, by personal contact we have enlisted the club women of Murphy and they, through their different communities, see to it that organizations are being made throughout the county of Cherokee in order that these little organizations may come in closer contact with the people of Cherokee County. In this way we have been able without any financial appropriation to reach a good many people who could not have otherwise been reached.

Dr. Wm. deB. MacNider, Chapel Hill: In my home I have been struck with the interest the colored people take in sanitation. It is my experience that they take more interest than the poorer class of white people. Perhaps twice a month a year ago I talked Sunday nights to the colored people in Chapel Hill and around in the country, and I also did the same thing in the poorer white churches. The white people did very little, showed very little interest, while the colored people besieged me for advice. Infections of colored people usually infect the white people that they work for, and I believe a good deal can be done for the colored people directly and the white people indirectly. I have found them extremely anxious to coöperate with almost anything you want to do.

Dr. L. B. McBrayer, Sanatorium: I believe in North Carolina and North Carolina folks, and I am mighty glad the State Board of Health has gotten to the point where it is able to take up county health work in what I believe will be the most effective method that has ever been used. North Carolina is the first to begin the use of a whole-time health officer. It was evident to all of us that one man could not do all the work that needed to be done in a county. At the same time that has been, with one or two refreshing exceptions, all that could be gotten over. Now, the State Board of Health has a fund which it expects to use in helping counties to organize a health department. Dr. Washburn mentioned that fact, but he mentioned it so briefly that I thought

it ought to be more strongly emphasized. One other thing I want to say is that the International Health Board has agreed to this plan and is also granting financial and other encouragement to the scheme—the plan, it is not a scheme—and I believe that the North Carolina Health Officers, the North Carolina Board of Health, and International Health Board and the counties are going to put on the finest system of health work in North Carolina that has ever been put on in the United States, and will become a model to every other State in the Union. There is nothing that has happened in health work in recent years that pleases me more than this thing. I suppose you all know Dr. Washburn will be at the head of that Bureau, and those of you that want to get the money to spend in your counties had better see him. The fact that no one plan fits every place has been emphasized and rightly so. You don't need to fight malaria in Dr. Adams's county to any extent, but you do in Pitt and other counties, so that the health officer must be an adaptable animal. He must make his surveys and see what is needed and do it. I feel like congratulating the health workers in North Carolina, the State Board of Health, the General Assembly, the International Health Board, and, most of all, the people, in this important step that will be taken in the next year in organized health work in the counties of the State.

Dr. B. E. Washburn: I would like to add something that might be of interest in regard to Dr. Adams's point, and something I would like to see in our work. We have always found hearty coöperation in the Woman's Club and it has always been very useful in helping us get actual work accomplished. For example, in our city of Wilson this organization took an interest in a sanitary survey we made of the city, and appointed a committee to go with us before the Board of Aldermen. Since then we have been able to get them interested in the inspection of meat markets and cafes, and a great change for the better is being made in these places. Also this point. In our towns and cities the best results can be made if you first make a sanitary survey. The boy scouts can be able to help in this capacity. You can visit every home, locate every surface closet and open well, find out the causes of death in the community, and see whether or not the death rate is higher than the average in the State. With this information you can always reach the people and interest them, and this makes it easy to get sanitary reformation.

My experience has been the same as Dr. MacNider's in regard to the colored people. I have always had more satisfactory experience reaching the colored people than the white. There are twenty-seven colored

schools in Wilson County, and twenty-one of these have raised money to put in sanitary closets and wells. I have visited the white schools and tried to do the same thing, but have got only about one-third of them to coöperate in this way.

THE FIGHT AGAINST TUBERCULOSIS WITH THE COUNTY AS THE UNIT.

L. B. McBrayer, M.D., Sanatorium, N. C.

A few years ago in cities it was considered necessary to have only a city health officer. Later, as our people began to place a greater value on their lives and their health, the city arrived at the conclusion, and wisely, too, that a health officer alone was not all-sufficient, and proceeded to the organization of a health department, with its laboratory, milk inspector, meat inspectors, sanitary inspectors, stenographers and other clerks, nurses, sanitary policemen and other employees.

At the first meeting of the State Health Officers' Association in Charlotte, June, 1911, less than six years ago, the idea of a whole-time county health officer was advanced, and a day or two later was approved by the State Medical Society. By both these organizations a minimum salary of $2,500 per year was recommended, with certain prerequisites such as office, telephone, stationery, laboratory supplies and equipment, and, in many, traveling expenses have been provided for in one way or another. Some wide-awake counties that have also had wide-awake health officers have recognized the value of the work and have paid salaries above the minimum up to $3,000, and perhaps above, and I have no fear of successful contradiction when I say that no county has received greater value for its money than it has for that spent in health work.

But this is a progressive age, and I believe the people of North Carolina appreciate the value of health work as greatly as any State in the Union, and they realize that one man, be he ever so proficient, cannot do all the work that is needed to be done in a county; and the time has arrived in North Carolina when the counties should have a health department—the health officer at the head, of course—and he, too, should have his clerks, stenographers, nurses, inspectors, etc., etc. The last General Assembly made an appropriation of $15,000 to further this work, and it is considered a certainty that funds from other

sources will be available to supplement this amount. I am not authorized to say so, but if any health officer or county who contemplates employing a health officer is interested in procuring some of this fund, they had better see the Secretary of the State Board of Health.

When this county health department shall have been organized, and before, tuberculosis will come in for a large share of the work. Our statisticians tell us that one-third of all deaths during the age period from 21 to 35 from preventable diseases are caused by tuberculosis, and one out of every ten of all deaths is caused by tuberculosis. It would seem then that any scheme or work for the prevention of disease and death in our State must concern itself to a considerable extent with this disease.

Then how should a county handle this problem? First, she should have a whole-time health officer and he should not be required to do clerical work and other things that can be done by a man or woman at a cost of $50 to $75 per month. He should offer to the people of his county examinations for tuberculosis without cost to them. When a diagnosis of tuberculosis is made, the case, if able to pay for treatment, would be referred by the health officer to the family physician, who would send the patient to a sanatorium or treat the case at home, as he thought wise and proper. If not able to pay for treatment, the health officer would arrange for the patient to be sent to the State Sanatorium or sent to the county sanatorium or treat the case at the patient's home, as seemed best and possible for the health officer. In either event the public health nurse, who is an important factor in county or city health work, will go to the home of the patient, and if the patient is removed to a sanatorium, will look after the cleaning and disinfection of the room where the patient has been, and if any other members of the family seem below par, she will see that they are examined, and a few years later, when we have become a little more enlightened, she will see that every member of the family is examined to see whether or not they have tuberculosis and that this examination is repeated every year or two.

Should the case be treated at home, she will make as many visits as may be necessary, giving the patient such nursing as he may need, and teach the patient how to live so as to get the greatest benefit from his treatment and so as not to communicate the disease to others. She will teach the other members of the family the hygiene of tuberculosis and the hygiene of life.

To properly care for the people of North Carolina, those who have tuberculosis and those who do not have tuberculosis, it is necessary for

the large counties to have a sanatorium or tuberculosis hospital, and it will be necessary for two or more of the smaller counties to combine and have one sanatorium or hospital between them. These must care for both the white and the colored and will probably care largely for the cases among the negroes and the far-advanced cases among the whites who are indigent. The people as well as the profession are recognizing the need of these county institutions and the county of Forsyth has a good one finished and ready for operation now. Durham has a hospital for tuberculous negroes, semi-private. Vance County has some tents; Buncombe has a small shack and others have the matter under consideration. An act was passed by the last General Assembly allowing counties to vote bonds to secure funds for this purpose.

One other thing needed: that is, every case of tuberculosis should be reported by the physician in attendance to the health officer and every case should be visited by the public health nurse, and, when necessary, by the health officer, and proper care and supervision given.

To recapitulate:

(a) Every county should have a health department, consisting of a whole-time health officer, public health nurses, clerks and other assistants.

(b) Every person in the county who suspects or is suspected of having tuberculosis, should have an examination free by the health officer.

(c) Every case of tuberculosis should be reported to the county health officer.

(d) Every case of tuberculosis should have proper treatment (1) in a private sanatorium; (2) in a State sanatorium; (3) in a county sanatorium; (4) by family physician or specialist in own home, or (5) by county health officer in own home.

(e) Every patient in the county who has tuberculosis should be carefully supervised by the health officer and the public health nurse.

Or, to express the gist of the whole paper in one sentence: Every person in North Carolina who has tuberculosis has a right to know it, to be properly treated for it, and to be so supervised that they will not communicate it to others.

DISCUSSION.

Dr. A. C. Bulla, Winston-Salem: Mr. Chairman, I want to say that the two papers just read, to me, are the most important papers that I have heard in this Society, presumably because they bear directly on the work that I am doing.

To speak of my county as a patient, it has only been under my observation for two weeks. I have been taking its past and its present

history. I find that in the county there are something like 60,000 people, in the city of Winston-Salem, something like 33,000; in the country about 27,000. Winston-Salem, I venture to say, differs from most cities at least in one respect, that is, it has a suburban population of 10,000 people. These are the ones I have to deal with. Taking together this suburban population and the rural population of the county, there are a jail, ranging from forty to seventy-five, three convict camps in different sections of the county with about thirty persons each, and a county home with about seventy inmates. At the present time I am arranging to open a tuberculosis building, which Dr. Washburn spoke of, capacity twenty to forty people. In addition to these institutions I am to do certain phases of health work which every whole-time health officer is supposed to do. I mention these things to emphasize the importance of the proposed health department which Dr. Washburn hopes to organize in several counties this year. I think that I can only hit the high places in the county without a health department such as Dr. Washburn proposes.

Dr. C. H. Cocke, Asheville: The summary which Dr. McBrayer gave is certainly one of the most important phases of health work which the entire profession of North Carolina could possibly undertake. Only a few, unfortunately, of these poor sufferers of tuberculosis can go to some high-priced sanatorium for treatment. Consequently, if we are going to attack this proposition of the eradication of tuberculosis it must be attacked in a man's home. I think it resolves itself into early diagnosis before the case becomes a potential source of infection to others, and into a question of segregation. The New Jersey law provides that each county shall have a sanatorium to take care of its indigent patients, and if they will not submit to the proper regulations in their homes then by law they may be made to go into a place where they will be properly segregated and taken care of. Even if they balk at that they have measures to put them under proper restraint. We are not going to accomplish much until we start at home. This is going to create an interest in the general practitioner in the diagnosis and treatment of tuberculosis which it has not had in the past. We must make the county unit the beginning of what I hope to see some day to be the real campaign for the eradication of tuberculosis.

Dr. John Thames, Winston-Salem: I just want to say I thoroughly enjoyed Dr. McBrayer's paper and also the paper that preceded him on Rural Sanitation. My experience in the work makes it most interesting to me to hear the proposed plan of the different counties in the State.

Since our opening address of welcome on Monday morning I have heard New Hanover County referred to in a favorable way. We have not had a report from that county and I wish to ask permission to give some of the results along the lines which these papers speak of.

First, I want to correct the statement of what New Hanover has spent—$30,000.00. Its population is about 38,000 in the county instead of 70,000, so that New Hanover has appropriated in 1916-17 approximately $25,450. The result of these large appropriations was brought about by teaching the councilmen of the city the necessity of health work. Rural sanitation has resulted in a sanitary closet for every home in the county, it has resulted in sewering in the entire city of Wilmington, forty-eight miles of additional sewer. The Health Department is not responsible for the Tuberculosis Hospital, but the ladies are. They have an organized Red Cross Society which pays special attention to tuberculosis, and they raised the money for the building. I think the county donated part of the land. They built an institution that can amply take care of thirty patients; has two wings, one for white and one for colored. The city and county partly take care of it, to the amount of $3,000 annually; the balance is donated by the good people, which is considerably more than that amount to care for it. This has been running about three years and we cannot estimate the great amount of good that has been done by that institution. Realizing that it is the class of people that may not be really indigent, but are not able to go away, the State Institution cannot take all of them and they have to pay a small amount to go there, this county institution will take no one except those that are not able to pay. Those who are able to pay can go away. We take only those that need it worse and are a greater source of infection than those of better life and can take care of themselves without this help.

These are some of the things that one county department has done in North Carolina by sufficient appropriation along the lines that Dr. McBrayer and Dr. Washburn have outlined.

GIVING THE AVERAGE MAN A CHANCE TO LIVE.

Henry Arnold Dennis, Associate Editor, Henderson Daily Dispatch, Henderson, N. C.

By the terms of this subject, "Giving the Average Man a Chance to Live," I mean to imply all citizens from and including that strata of society known as the middle class on down to the lowest degree of pov-

erty. There is a group which would hardly come under this head, so low has it dropped, and that is composed of the individual who is taken care of by public charity, or as a guest in some State or private institution.

The "average man" to which I refer makes up that vast majority of our people who are neither wealthy nor intensely poor, but are amply self-supporting, yet who become objects of charity the moment they are disabled by accident or stricken with disease and taken from their daily labor. It is the man who becomes helpless whenever his salary stops for whatever cause. This class, on the whole, constitutes our most desirable citizens. It is of these that I shall concern myself. I shall dismiss the well-to-do and the charity ward, for were there only these two classes of people in the world, there would be no problem such as I am to discuss. Yet both these would participate in and benefit from the plan I should like to see put into operation to preserve and to prolong human life.

Medical science and art, evolved and perfected into its present status after generations of study, research, and experience, is today available to comparatively few persons. The well-to-do can afford the best known, and the poverty charge has it supplied to him in a measure by some guardian, sometimes a relative, sometimes an organization, and still again by municipal, county or State government.

A millionaire becomes seriously ill. Only the skill and the delicate stroke of the most careful physician and the tenderest and most devoted nurse can stave off the onslaughts of death and drive back the advances of the canker that is eating his life away. No doctor's fee is too large to pay in exchange for the treatment that will arrest disease, and no doctor has so many other duties to perform but that he puts them aside to give the best that is in him that the rich man may be saved.

The man in the middle class, the bookkeeper let us say, becomes seriously ill. He must leave his desk. His income stops. He has a health and accident policy, but that will only provide for his family of a wife and three or four children during his illness. He has managed to set aside in his savings account a few dollars each week, but the sum total is far too small to stand this heavy drain. His income cannot satisfy the demands of his illness and furnish the necessary treatment, and there is no provision for him. There is no chance and no opportunity for him to bridge the chasm of disease and disability. He dies because he lacked the proper medical attention. A life insurance policy yields $2,000 or $3,000 to the wife and children. This is soon gone, and the mother and her little ones are left upon the charity of a cold and heart-

less world. They become a burden upon some group of individuals or upon the public treasury, whereas if the head of the family could have had the needed treatment, he would have been restored to health, and would have remained an economic factor in the community, earning a salary, carrying his own burden, and making of himself a useful citizen, and training his children to become such. Had the wealthy man died he alone would have been lost. He would have left his thousands and tens of thousands as provision for his family, and not only would the public's funds not have been drawn upon to support those he left behind, but the public treasury would have profited by what it received in the form of an inheritance tax. You say this is a cold-blooded way of looking at it, and it is, but these are the facts. Which of the two deserved the more to live, from the standpoint both of the family and of society at large? The answer is obvious. I would not take from the man of means the privileges his wealth affords him, but I would make provision for the middle class man.

Medical treatment ought to be as free as the learning taught in our public schools, and even more so. The upkeep of the human machine is of far greater importance than the teaching of the merest rudiments of an education, for, as helpless as an ignorant man is in our modern world, he is much more helpless, and is even a burden, when he has lost his health and has no means of regaining it. The health of the whole people is as much the concern of the town, county, or State as is education. Most of our doctors stand ready and willing to make a free charity visit now and then, but the patient does not receive the care and attention he deserves and ought to have. There are provisions, too, in most of our towns, for hospital treatment for the pauper. But both these are undesirable and do not go far enough. In whatever way they are considered, they cause embarrassment to the recipient of the treatment, who does not like to have it said that he must lie in a charity ward in the hospital, nor that the doctor comes free because he can't pay the bill. Prompt, careful, and necessary medical care of the middle man, "the average man," if you please, is sorely lacking.

At the present high cost of the necessaries of life, even in normal times, the man on a salary of $1,200 or less per year simply cannot provide a family with sufficient medical attention, and the great bulk of our citizens fall in this catalogue. And it is not his fault in every instance that he cannot increase his earning power to command an income of greater proportions.

The life extension campaign, a new phase of public health work just inaugurated by the State Board of Health, and the first experiment of

which was put on only a few weeks ago in my own town and county, in my opinion is one of the wisest and most far-reaching movements ever undertaken in North Carolina against the ravages of disease and deterioration in the human body. I believe that this can best be done, however, by our whole-time health officers, rather than by a specialist who goes from county to county to carry on the campaign. If a county can afford to appropriate $500 for a campaign of six weeks, it might appropriate five times that amount and get the services of a health officer, in all his varied fields of activity, for the whole year around. However, as valuable and as worthy as this new phase of public health work is, it still lacks one great essential. It does not go far enough. It makes no provision for treatment after examination. After the free inspection of the body has been given, and the patient learns the nature of his ailment, he is still unable, financially, to pay for the services he needs. He is but little better off than before, except in so far as the examining doctor may instruct him in steps he himself may take without the services of a physician. Indeed, if he is in need of medical treatment, he will make himself worse by continued worry over knowledge of his condition and the realization that he cannot afford relief. The fact that so many are helpless to procure treatment may in itself constitute a big drawback to the life extension work, in that many a man, fearing that he will be told of physical conditions that are dangerous, will not apply for the free examination, because he knows that, through a lack of funds to provide the doctor's fees, he cannot follow it up. Consequently he does not want to know that disease exists in his body, even though he realizes that the longer it is left to take its course the more hopeless does his condition become. The life extension work should be carried a step further to the provision for treatment, although this phase of the work would hardly be undertaken by the State Board of Health.

There ought to be a system whereby the very greatest accomplishments of medicine and surgery would be available for every living human being, without respect to his pocketbook or his bank account, or race or color. Medical treatment ought to be made available without price wherever and whenever it is needed, and as long as it is needed. Why should the right to live be denied a man because he cannot afford the price of a doctor's fee in exchange for his life? It should not be. I believe that it would be both practical and feasible for counties and towns as units to employ physicians to be overseers of the health of the people, and who would see that prompt and adequate medical attention is given to every citizen. Enough men would be employed to take care

of the needs of the community, so as not to keep any one doctor on the go all the time, and to provide each with sufficient time for rest and recreation. Every man would be allowed enough time of his own to continue his studies, and for experiment. The doctor who was first called in would, of course, continue with the case until recovery or death, others being summoned for consultation, however, whenever this was thought advisable by the physician in attendance.

There would necessarily be an organization with an administrative head, just as in the case of our schools, although there would be a stronger relationship and a closer coöperation. Offices for every doctor might be located in the same building, in a community hospital, for instance, or they might be in various parts of the town or county for the convenience of the districts served. But, above all, the organization would be obliged to be freed absolutely from the system of petty politics which is a hindrance to so many good things in city boards of aldermen, town councils, or in boards of county commissioners. Each employee, we should say, would be as much at liberty to express his political views on things of a state-wide or local nature as he is under the present system. He would have no more strings tied to him than our school teachers have, and even less if possible. In other words, there would be no interference whatever with the performance of his duties to the people of the community.

As for the salary to be paid, that naturally would depend to an extent upon previous experience and the recognized worth of the physician. By steady, persistent, and honest effort he could command more and more as his services became more valuable, and as his triumphs in handling disease grew in number and importance. Cities and counties would put as great a premium upon the services of the man who excels in his profession as is now placed by individuals who can pay, and the greater his achievements the greater would be the demand for him, and the keener the competition between communities for his services. Men with less experience, and who were beginning, would at first give their attention to cases of less importance, while the delicate and vital operations and the diseases which puzzle some physicians would be put under the care of a man of equal rank with those who under the present arrangement specialize in this class of treatment. There ought to be an expert in the treatment of diseases of the eye, ear, nose, and throat, as well as a sufficient number of dentists to care for the demands in this field of the profession. The city could always get the degree of service it was willing to pay for, and the constant effort of communities to get the best would tend to spur the physician to more and greater achievements in order that he might himself attain unto the best.

There would be no doubt as to the doctor's salary under the system I am outlining. His income would always be certain, and it would come at stipulated intervals. The doctor who today does a practice of $5,000 to $10,000 per year is rarely able to collect more than sixty per cent of his earnings, I am told. A doctor for every 1,000 persons in a community would mean an outlay to that community of a considerable amount of money annually, but would be cheaper in the long run for the people, and more remunerative to the doctors.

Day and night shifts might or might not be employed by the organization of physicians. This would, of course, depend upon the need. If each physician held rigidly to his own cases, he would, of course, go when called, day or night. The division of a community into districts over which certain physicians would be appointed might not be so desirable in towns and cities as it would be for counties.

A public hospital, in which the very best attention obtainable would be afforded, should be included in this scheme. It would be accessible to every physician, although one or more doctors, according to the number of the patients, would be stationed there constantly to give their whole time to the care of those confined. One or more of these would be a surgeon of ability, and one in whose hands the most delicate cases would always be safe. In connection with the hospital there might be, also, a tent colony for the care and treatment of tuberculous patients, in instances where there were enough cases of this disease to warrant such a department.

There are few members of the medical profession today who would refuse prompt medical aid in an emergency, but not many of them follow up the case when they know that their services are forever to be of a charity nature. This is not expected of our doctors, and ought not to be, for they might all wear themselves out at this practice if they chose to do so. The fact that they could find work of this sort to do is the greater reason why some universal service plan should be put into use.

After this plan had been in force for several years, disease would, in my opinion, begin to disappear, in proportion, of course, to the efforts put forth toward prevention. The earlier the physician is called the sooner the disease is arrested, and instances of serious attacks would soon begin to diminish.

This system would be more costly in the beginning, but less expensive as time passed by. It would put the medical profession on a higher plane. It would evolve itself into a recognition of public service, and would bring us all into a greater realization of the spirit of the broth-

erhood of man. I believe that most doctors today are in their profession fully as much through love of it and the service they can render as they are from a purely money-making standpoint.

I do not propose this scheme of mine as a panacea for all ills. It is no Utopia, to be sure, but I believe it is entirely possible and thoroughly practical. It has been tried and proved successful among the employees of big corporations, although in such instances it has been more in the nature of health insurance, and this is not my idea at all. It is a sort of broader health insurance, guaranteed by the county or the municipality, and where every taxpayer bears an equal share of the burden. It is not always the sick man's fault that he is sick, nor is the poor man always to be blamed because he cannot afford the proper medical attention under our present system.

The idea is one entirely my own, and I merely give it to you for what it is worth. I doubt not that you can pick flaws in it, and punch holes in many places, but I sincerely believe that every defect could be worked out and overcome, and that it could be made of inestimable value wherever put into effect. There are many other phases of the plan that I have worked out in my own mind, and numerous remedies for apparent discrepancies in my argument, but these cannot be touched upon here. The operation of such a system would certainly mean less suffering and longer life for untold millions who go down to premature graves for the lack of a doctor at the time when he is most needed, and whose services are not obtained because of a lack of money. Whether or not you and I live to see it, I believe the day will come when the sick will be cared for in this manner. It seems to me the logical conclusion toward which the public health movement is tending today.

THE RELATION OF PUBLIC HEALTH WORK TO THE BUSINESS INTEREST OF THE MEDICAL PROFESSION.

W. S. Rankin, M.D., Secretary North Carolina State Board of Health.

On state occasions like this the medical profession likes to believe that it is the most self-sacrificing of all professions, being the *only* profession that seeks self-destruction in the interest of the public. In the privacy of his office back home and on the solitary drives over country roads, it is a little doubtful whether the individual member of the profession gets much pleasure out of contemplating professional suicide.

The bearing of public health work on the income of the average physician is a question of vital and equal importance to both practitioner and sanitarian. To the practitioner an adequate income means ability to keep himself up to date, to buy books, to equip his operating room and his laboratory, to take a certain amount of post-graduate work—in short, to keep himself prepared to do good work. To the sanitarian a well-equipped, up-to-date medical profession is a *sine qua non* in the attainment of public health ideals—a low death rate and an increased longevity—and such a profession cannot be recruited or maintained on corn bread and buttermilk.

I have attended some hundreds of public health meetings, international, national, state, and local in scope; I have read much public health literature; I have never heard or read a discussion dealing with the relation of public health work to the income of the medical profession. Is this silence due to the fear of the physician or the sanitarian, or to the fear of both to discuss openly a delicate question involving private gain on the one hand and the public welfare on the other hand? If such fear exists, it is ill-founded. A better income for the medical profession and better health for the public are not antagonistic, but synergistic. What are the principal objects of the sanitarian and what bearing have these objects on the doctor's income?

One of the principal objects sought by the sanitarian is a higher degree of public intelligence with respect to sanitation and hygiene. Is such intelligence a financial asset or debit of the medical profession? Who sends for you oftener, and pays you less grudgingly, and pays you more, the intelligent or the ignorant citizen? Who, in the beginning of an attack of typhoid fever, is the first to send for you, the intelligent or ignorant person? Who appreciates and insists on two visits a day in order to protect himself against hemorrhage and perforation, the intelligent or ignorant person? Who, on the other hand, objects to frequent visits, not knowing the dangers of typhoid and the value of careful attention, the intelligent or ignorant person? Which mother, the intelligent or ignorant mother, calls you oftenest and pays you best to see her baby during its first two years of life, or, for that matter, her child during infancy and childhood? Which family, the family that understands the danger of heart and kidney involvement in scarlet fever, the danger of cardiac paralysis following diphtheria, the danger of pneumonia after whooping cough and measles, or the family that does not understand these dangers, the intelligent or the ignorant family, most appreciates your attention, sends for you quickest, insists most on repeated visits, and pays you best? Which obstetrical case, the one that has been informed and understands pre-natal and post-natal dan-

gers, or the one that knows nothing about pre-natal and post-natal dangers, insists on the right number of visits, the proper urinary examinations, and other care—in short, which is the most remunerative obstetrical case, the intelligent or the ignorant woman? Or consider two consumptives; one intelligent, one ignorant. The first, recognizing his disease, secures the proper treatment. The second, not recognizing his disease, neglects to secure the proper treatment. The first case is diagnosed incipient tuberculosis, treated six months, arrested. The second is treated six months and dies. They both pay for six months treatment. The ignorant and dead consumptive pays no more. The intelligent consumptive, on the other hand, after saving his own life, saving the reputation of the physician and saving the physician a great deal of unnecessary worry, pays for one or two examinations a year for fifteen or twenty years, and in that fifteen or twenty years pays other doctors for other professional services. Which is the best financial asset of the profession, the intelligent or ignorant consumptive? An intelligent man, a man informed on health questions and as to danger signals, has a pain in his abdomen; he recognizes the possibility of appendicitis; he calls his surgeon promptly, is operated on, and is out of the hospital in a week or ten days. The ignorant man, not informed on hygienic matters and as to danger signals, has a pain in his abdomen. He wants to save the doctor's bill; he postpones sending for the surgeon, and in the meantime attempts to relieve himself with a dose of salts. When he reaches the hospital, he, likewise, is treated a week or ten days and leaves the hospital, in an undertaker's wagon. Both owe for a week or ten days treatment, but one continues for many years a potential asset of the medical profession while the other as a potential asset ceases to exist. Which pays you most, sanitary and hygienic intelligence or sanitary and hygienic ignorance?

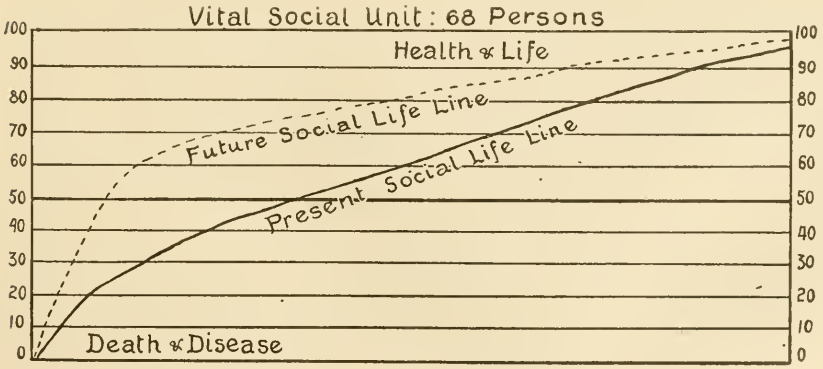
A second principal object of the sanitarian is to find and refer physical defects in their early and remedial stages to the medical profession for treatment. I may cite here, as an illustration, two phases of public health work well under way in the United States and also in North Carolina. I refer especially to medical inspection of schools and life extension work.

The medical inspector of schools finds about 20 per cent. of school children with defective eyes, 5 to 10 per cent. with adenoids and enlarged tonsils, and I am afraid to say what per cent. with bad teeth and suppurating gums. The inspector points out these defects to the parents, explains the possible influence of the defects on the future of the child, and advises the parent to see his physician and have the

trouble attended to. This work very definitely and materially increases the income of the profession, and, which is more important, does a far-reaching public service.

Life extension work, which, as some of you know, was started four or five years ago by the Life Extension Institute of New York City, has for its object the early detection of the commoner defects in the adult population and the reference of those that need medical attention to physicians. In its work the Institute contracts with large corporations to make a physical examination of all of the employees and officers of the corporation for a flat rate just sufficient to cover the expense of the examination. During its existence, the Life Extension Institute has examined over 200,000 adults and has referred 59 per cent. of those examined to physicians. This piece of work has recently been undertaken by the North Carolina State Board of Health. The State Board of Health contracts with county authorities to make a physical examination of all white adults between the ages of 25 and 65 who desire such an examination, for the purpose of finding and pointing out incipient and remedial defects to the person examined and of impressing those found to have such defects with the importance of treatment. Those found to be seriously impaired, (about 60 per cent of those examined) are referred to physicians for treatment. Life extension work is a most important public health activity, and its success certainly means more work, better work, and more pay for the medical profession.

The third principal object of the sanitarian is to bring the whole vital structure, the whole life line of society, under more expert care and supervision. At present the physician deals with but a small fraction of the total life. Indeed, he comes into touch with but a minor part of pathology and practically none of physiology. Our social structure, biologically considered, is fairly accurately formulated in this diagram:



In a composite group of 68 people we have all the elements of our population in their usual proportions, white and black, male and female, old and young, feeble and vigorous, sick and well, dead and alive. In this group, here diagramatically represented, we have the social life line passing from left to right and from the level of zero to the level of 95, and suspended between these two extremes of the quick and the dead, we have suspended at various levels of vitality and efficiency 68 people. Three of the 68, one dead and two in bed all the time, are represented by that part of the line which is under 10 per cent. efficiency. Under present conditions it is safe to say that the work of the medical profession is largely, if not almost entirely, restricted to that part of the line which lies between zero and the intersection of the 20 per cent. level, and which represents about 6 or 7 persons out of a group of 68. The physician's present field of work is but a *minor part of pathology*, not even the *larger part of pathology*, and practically none of physiology.

Now, the possibilities of service and reward at the higher levels of the social life line are greater than at the lower levels. The call at the lower level may be more urgent, but it does not offer anything like the opportunity for service as the call at the larger and higher part of the line. It means more to North Carolina to raise the physical and mental vigor of the 10, 15, or 20 leaders in the progress of this State, one or two per cent., than it does to raise the physical and mental vigor of a thousand, two thousand, or five thousand of those who live under the 30 per cent. level of the line, ten to twenty per cent. Mere existence, mere living, is not the purpose of creation. Quantity of life is desirable, but quality of life is essential. Five thousand people are born, live their life and pass away, and the total gift to society of all that quantity of life is not equal to the gift of that quality of being of one McConnell.

The business of lifting the whole life line is the demand and opportunity of the future. This lifting process calls for a knowledge and application of not only the principles of pathology but also the principles of physiology—a pushing up the line of those who have gravitated, through wear and tear and accident, and also those who have not gravitated to higher levels of life, grander conceptions and nobler service. In the ever enlarging field of medicine towards which the sanitarian is leading, the medical profession will not serve the sick less but will serve the well more. The greatest lawyers of today rarely appear in the courtroom. They are the legal advisers of those who are living at a high level and whose vision is big. They keep their clients out of

trouble instead of getting them out of trouble. And so the greatest doctors of the future will rarely appear in the hospital. They will spend their time, not in making the unfit fit, but in making the fit fitter. And so I submit to you that in this process of enlargement of the field of service which public health is making, your material reward will be commensurate with the greater service.

The fourth principal object, one of the larger and one of the ultimate objects of the sanitarian, is an increased longevity. The sanitarian is making a hundred thousand people live an average of 60 years instead of an average of 40 years, and in doing this (you can see by a very simple process of multiplication) he is replacing a total of 4,000,000 years of human life with a total of 6,000,000 years of human life. Which pays the medical profession most, 4,000,000 years or 6,000,000 years of human life?

And so I conclude, as I began, that the public health interest and the business interest of the medical profession are not antagonistic but are *synergistic*.

DISCUSSION.

Dr. D. C. Absher, Henderson: This paper ought to be of great interest to every man engaged in public health work as well as every man engaged in the practice of medicine. I trust it will be discussed very fully.

Dr. William Allan, Charlotte: I think the paper of Dr. Rankin is a very good statement of the case. The idea that the medical profession is destroying its own business by stamping out infectious disease is an absurd proposition. The acute infectious diseases destroy our patients under thirty years of age, and it is simply killing the goose that lays the golden egg to let our people die before thirty. Dr. Rankin has drawn attention to the factor that is replacing this temporary loss and should do it a great deal more, that is, keeping those over forty years alive by regular examination. I find the public is becoming more interested in this subject. There are a good many people that come for a periodic examination, and I think in a few years this will become a very general proposition.

THE CONTROL OF PREVENTABLE DISEASES OF CHILDREN.

J. C. Wiggins, M.D., Winston-Salem, N. C.

In presenting this paper for your consideration I do not apologize for not offering something new because I feel that at my age, my limited experience precludes any wide observation and tabulation of results, and, on the other hand, a man giving his entire time to general practice is unable to do the laboratory work which is essential to research. But I ask your indulgence in laying emphasis on facts which have been proved from time to time, but to which we have not given sufficient weight; which, in the rush of the day's work, we are too prone to neglect in the search for a cause which seems to us, at the time, more commensurate with the symptoms presented.

When we reflect that of all children born alive, about 25 per cent. die during the first year of life, and that of all diseases during this period 5 per cent. only are due to organic and congenital diseases, then we must realize that there is some very common, lightly considered, cause which is playing such havoc with the lives of children. This is further emphasized, and improper feeding as a cause of disease is brought into greater prominence by the records of the Budapest Foundling Hospital for the twelve years ending 1914, which gives a mortality from all causes of 5 per cent.; but here the mother is always admitted with the baby, and if the mother does not lactate, then the formula for the feeding is of course worked out upon a scientific basis. It has been estimated that of the causes of death during the first year of life, 5 per cent. are due to congenital and organic diseases; 30 per cent. to the preventable diseases, such as pneumonia, scarlatina, measles and diphtheria; 50 per cent, to improper feeding, and 15 per cent. from accidents and other causes.

In New York during 1911 where the general death rate was 15 per 1,000, the rate for children under one year was 114 per 1,000; 75 per cent. of these died during the first six months before the acquisition of strength and resistance to improper feeding—before nature could come to their aid and help in the adaptation to environment.

It is also estimated that for the entire United States, including registration and non-registration areas, about 600 children of each 1,000 born alive, die before the end of the fifth year.

Do you know of any stock raiser who would not become bankrupt if such a mortality prevailed among his cattle, sheep, hogs, horses, etc.? My life and observations on the farm have been limited, but I have spent enough time in the country to know that if we can ever bring ourselves to guard our families as we do our pedigreed stock and bestow upon them the same intelligent care, surely the Utopia of health is ours. A sick pig or cow is a most unusual sight on the farm, and I do not remember ever to have seen one die.

The control of the preventable diseases of children is not an object to be searched for occasionally as the proverbial sack of gold at the end of the rainbow are, but requires unremitting, patient, diligent effort; but, at the same time the work is pleasant and is only the application of the same common sense with which we raise our stock, with the addition of a few refined touches. The effort must be constantly applicable, however, to all phases of the child's existence, and I have divided these phases for our own consideration into:

I. PROPER PRENATAL CARE.

We are all familiar with the care which we urge our expectant mothers to give to themselves, such as are included in the directions as to food, elimination, exercise, clothing, corsets, shoes, ventilation, care of breasts, teeth, etc., and the necessity to always be spared excitement, worry, shock, and other conditions reacting upon central nervous system. The father can be either a great handicap or a great help to a pregnant woman by the way in which he conducts himself in response to her increased sensitiveness, nervousness, and whims.

II. PROPER BIRTH.

It is essential, in order to purge our statistics of deaths due to accidents during childbirth, to consult the physician early in pregnancy that he may keep a watchful eye over the expectant mother, and it is also important to call him early in labor; and it is equally incumbent upon the physician to either remain with the patient until the termination of labor or leave another doctor or a specially trained nurse with the case during his enforced absence. And in this connection I would say that more extensive study should be given to this branch in all schools since, next to pediatrics, I believe it to be the most neglected branch of medicine.

The mother should be given the very best obstetrical and surgical care indicated in order that she may be able to give the proper attention to nursing the growing child.

III. PROPER FEEDING.

There is no need for detail here. If the child nurses the breast, especially must the mother be kept from all kinds of worry, excitement, emotion, etc. Her life should be made as smooth and easy as possible. I recall the case of a young mother whose husband left her the third day after delivery in order to go upon a two days hunting trip. The mother, thinking only of the apparent neglect of the husband, worried herself into a temperature of 104, and for two days thereafter the child suffered from vomiting, fever, and diarrhea, which cleared up without any other apparent cause. Many cases of scanty milk in the mother have their origin in some such manner.

If the child is to nurse from the bottle, we are familiar with the care that should be taken with the milk, avoiding all possible exposure. We should know the condition of the dairy from which the milk comes and the manner of transportation, etc. We know that nature requires the closest imitation of mother's milk whenever it becomes necessary to take the child from the mother's breast. We must learn to discard the patent foods as a general routine, avoid indiscriminate and irregular feeding, and also teach the mothers to call the physician at the first sign of indisposition.

IV. PROPER HOUSING.

The house too open and breezy is, of the two, to be preferred to one insufficiently ventilated. Good ventilation, moisture, medium heat (68-70), and sunlight are to be desired, but carpets, wallpaper, sweeping, steam heat, cradles, etc., are to be distinctly discouraged.

V. PROPER CLOTHING.

The child with too much clothing is far more liable to colds, bronchitis, pneumonia, and other disturbances of the respiratory tract than one with scant raiment. Too much clothing while at play causes activity of the sweat glands and reacts in an injurious manner when the child quiets down and then becomes chilled. Too much clothing or bedding during the night, causing the child to perspire and become restless, kicking off the clothes, has caused many cases of tonsillitis, croup and bronchitis.

VI. PROPER BATHING AND SYSTEMATIC EXERCISE.

There is no part of a child's life so neglected and at the same time more conducive to good health than these two precautions properly carried out. It is necessary that the child be bathed every day to re-

lieve the skin of its excretions, and a slightly cool sponge to taper off which trains the skin to that reaction which is so necessary.

Exercise, even a certain amount of crying for a young baby usually quiet, is good, and development of muscles is just as important as, and goes hand in hand with, mental development. Remember the Japanese saying, "A strong mind dwells in a strong body."

VII. A PROPER NURSE MAID.

I do not know of any other one circumstance which from the viewpoint of the doctor is so much to be regretted as the condition which forces mothers in this part of the country to accept negro girls as nurse maids. As a class, irresponsible, shiftless, dishonest, ignorant, stupid, morally degenerate, and filthy, they present a most formidable array of traits so undesirable in a nurse. Such maids display unlimited neglect and carelessness towards the babies in their charge. Infants are allowed to lie with the sun shining in their eyes; are permitted to become chilled, tired, or hungry, or to lie in wet diapers; they are scolded or jerked about by one arm or fed with candy, cakes and other unsuitable foods to keep them contented. These latter are often taken from their own mouths and put into the mouths of the children. When at home they may be left strapped in a chair for long periods of time, or, without the mother's knowledge, may be given soothing syrups or quieting medicines; they may sometimes be threatened with the policeman, doctor, or, it may be, a wholly imaginary person who will come, if necessary, to enforce her will. I have seen several cases of children who had been worked up into a pitch of excitement and nervousness through being frightened by the maid, and fear instilled thus early in the impressionable mind of a child is often almost impossible to eradicate and may persist to the child's harm for many years. On account of their ignorance, filth, and untruthfulness, many a child, while being cared for by the nurse, is taken to the house of some relative who has measles, scarlet fever, pneumonia, grip, or something else just as bad. I have known them to take their charge to their own home in the afternoon and to set the child down while they proceed to sweep the house in order not to have any task after working hours which would prevent them from going out with some dusky, foul-smelling, disease-riddled swain. They congregate on street corners and talk while the child runs into the streets in the way of automobiles, teams, etc., at the same time running the risk of falling and fracture. We know their tendency to tuberculosis and I have known several nurses to develop this disease while employed as nurses to children.

The association of nurse and child is most intimate and too much care cannot be used in their selection. It is a physician's duty to see that the applicant is physically fit. Remember that gonorrhea, so common among negroes, is very easily conveyed to the female child. Some degree of intelligence should be insisted upon because a child will not develop mentally as it should without some guide, and the nurse should be able to entertain the child and to keep it otherwise pleasantly employed, and this requires tact and some degree of mental fitness.

VIII. PROPER SANITATION.

This, together with the five phases of prevention—proper food, proper housing, proper clothing, proper prenatal care, proper bathing and exercise—may be rightly classed as Proper Education and come under the supervision of the Health Department, which I earnestly hope to see in every county in this State in the near future. Much can be accomplished in the prevention of diseases in children by our wholesome, whole-hearted, financial and moral support of our Health Departments, and they, by means of the press, pulpit, clean-up campaign, baby weeks, talks before all kinds of organizations, and various other channels, can soon educate and enlist the efforts of all the people in the line of proper living and proper sanitation. This phase of prevention is stupendous to an extent that nothing short of a well organized health department, properly equipped, with proper authority and properly supported, can possibly handle the situation with any degree of success.

IX. PROPER PREVENTIVE MEDICINE.

This includes obedience to and hearty support of laws requiring reporting of contagious and infectious disease, quarantine laws, isolation, medical inspection of school children, and other health department measures, and the administration of vaccines, bacterines, or serums wherever indicated; the explanation to parents of their purposes and an effort to remove any prejudice which may exist relative to their merits.

X. THERAPEUSIS.

This also requires no elaboration, but I know that every man practicing medicine can well afford, considering what can be learned, to spend from two to four weeks each year in some medical school studying diseases of children. There are two conditions I might mention upon which there has been much misinformation, viz., the second summer and teething; and strange to say, it is quite common to hear of physicians, if not actually encouraging these ideas, certainly not discouraging

them. Dr. Kerley says of teething, that while it is a physiological process and does not always give any trouble in well-nourished babies, there may be slight fever, restlessness, and some loss of appetite associated with the eruption of a tooth; however, it is only temporary in character. Of course these symptoms are much more pronounced in the rachitic, syphilitic and other undernourished children. This same author says, "Speaking from a large experience, I have never known but one child to really suffer from dentition, and that was a rachitic institution child who had convulsions with each of four teeth with no other apparent cause."

From the fact that the child is restless, feverish, and irritable, the digestive capacity is lessened and in the face of a continuation of the usual diet, fermentative diarrhea results which may sometimes be and often is the starting point of a grave intestinal disease.

From the above we can see that a reduction of diet when restlessness, fever, etc., are observed during dentition, especially in hot weather, will remove the most likely cause of trouble. The second summer, approached properly, is hardly more dangerous than any other summer during the early years of a child's life. As a matter of fact, the gastro-intestinal tract in adult or child is less able to bear abuse in summer than in winter, but the mother, regardless of the season, and thinking that the child is grown, gastro-intestinally speaking, gives it tastes from the table or an entire meal therefrom, regardless of the menu, besides crackers, candy, cakes, etc., between meals. Is it any wonder that the child becomes ill?

Now, I know that these may seem ideals not easily attainable, but I believe they are much more easily within reach than they seem; certainly we can never hope to reap the harvest of health unless we diligently sow the seeds of education and effort. Other countries have, by disseminating information and establishing health departments with authority and financial support, been able to reduce infant mortality. I may mention these statistics:

	1892	*1911*
New Zealand	89	56
Australia	106	68
Massachusetts	161	119
New York, over	200	114
Germany	...	192
France	181	111
Austria	259	207
Hungary	274	207
Ireland	105	94

I cannot help but believe that medical practice will be much more pleasant when people learn to call the doctor in the beginning of a disease when definite and desired results can be so much more easily attained, because with the increased education relative to consequences and complications, the laity will be much more anxious to have early restoration to health and the doctor will have a better body to work upon.

I am just as confident that with the proper care during all phases of the child's development just discussed, our own infant mortality can be reduced to that of New Zealand (56 or lower) and our State will be richer in life, happiness and wealth.

DISCUSSION.

Dr. W. S. Rankin, Raleigh: This was a most interesting paper to me. I have been waiting for Dr. Hays to open the discussion of this paper. He is especially interested in the relation of the class of servants that we have to the development of the child.

I frequently walk out of my office on a public square in Raleigh and look at the little children with a lot of negro women taking care of them. It is surprising to see the carelessness of some of the nurses. With an epidemic prevailing in the town you may see the nurses with children from two or three months to three years old running around playing with each other. Early in March as I walked out of my office I saw twins—I don't suppose over a year old—they were in one of the twin push carts, the day was very cold (Sunday); I suppose the mother had gone to church. The children, with hands red as the feet of a duck, were crying with the cold, the woman was indifferent. I stood there and gazed at her and finally she understood what I meant. She rolled the children off, perhaps just around the corner. It seems to me that the nurse problem as we have it in North Carolina is one of the most important infant hygienic problems.

Dr. I. W. Faison, Charlotte: This is a very, very interesting paper of Dr. Wiggins, one that has taken a good deal of thought and care in the preparation. It has struck some very important points along the lines that have interested me for a long time.

First, I will speak of the obstetrician. He is a stranger to me. There are so few in my knowledge that I do not know if I would know one if I met him in the road. Dr. Williams at Johns Hopkins calls them men-midwives, but as far as the obstetrician in North Carolina is concerned he is almost as far apart and few in number as hen's teeth. An obstetrician requires preparation and knowledge that few medical men

in North Carolina have, and a man who cannot do anything at the time of a confinement to meet any condition is not an obstetrician. He stands there with his hands and waits for the woman to deliver herself. As Dr. Wiggins says, it is something that ought to be looked after and that he ought to be trained better.

As to the child and the crying, he is absolutely right about that. I have seen children with malnutrition and death because they did not get oxygen enough to live on and take care of their blood. The death certificate may say what it wants to; still it was because it did not get oxygen. It is a good plan to make a baby cry every day.

As to the nurse, as Dr. Rankin has said, there is a subject that interests men at work. If you take into consideration the fact that that is the weakest point in growing children in America, not only here but in the North, it is almost impossible to get a nurse like you would like to have. The nurse situation in the South is abhorrent, but it is the best we can do. Now, I am on neither side, I am on the fence, but with the suffrage idea coming on it looks like we are going to need more nurses than we have now even if more incompetent. A dirty negro is not fit to take care of a child. It is strange when you study that line to see how negroes who don't love anything else love a white child. They would rather kiss your child than to eat candy made by Huyler, and no child ought to be kissed in the mouth by anybody. It is poor business to kiss anybody in the mouth.

I will not be here when the time comes in North Carolina for the nurse problem to be settled satisfactorily; the millennium will be at hand and Gabriel will already have blown his horn before that day comes. We can instruct the mothers if we can keep them home long enough to attend to it, and it will be about as hard to keep them home as it is to make the nurse fit to attend to the children.

Dr. Benj. K. Hays: I guess I am responsible for this paper being placed in this section. I have no apology to make to the audience.

I want to discuss one phase, that is, the negro nurse for the white child; and in conjunction with that we have also to consider the negro cook and the negro laundry woman. That seems to be the greatest problem of any southern health officer. What are we going to do about it? The first thing that suggests itself to the minds of each one is to send the district nurse into their homes and, since they are suspicious of the white nurse, you must send a colored nurse. A trained negro nurse is a stranger and is still regarded by the negroes in the home with suspicion. The nurse would cost from $60 to $100 a month, and the cost is a considerable item. This subject has given me more concern than

any one subject in connection with my work. I have tried to work out a plan to bring the message to the negroes through the negro leaders. With that end in view I asked to come to my office about six negro women whom I regarded as the six most influential negro women among the negroes in my community. Three of them were school teachers and in each case I secured a recognized leader. Three of them were the wives of negro preachers, and three others were influential negro women. This little body I asked to meet at my office, and they do meet there every Friday afternoon, representing every negro school, church, lodge, cult of society in the town. We have the leader and she meets with us every Friday afternoon. We did not have money to employ a health nurse, so I asked two women in two different sections of the town to give as much time to visiting among the negro poor and sick and ignorant as they could afford to give from their work at $5 a month apiece, and the first month I paid the women out of my own pocket. Later the Woman's Club gave me $50, money raised by selling Red Cross seals to continue this work for five months while it was really still in the experimental stage. On Friday afternoon we have a report of the visits, a report from the schools, from the homes, from every section, about the health of the negroes in the district. We have had talks to these women by trained nurses, physicians and ministers. We get any one who has a message. A Baptist minister, cured of tuberculosis, told how he weighed ninety pounds when he came to Asheville for treatment, how he now weighs one hundred and sixty-eight pounds, and he told these negro women how he was cured. Now, this message, which these women hear eagerly, is carried out to the negroes throughout the community and into every negro home. Then I mail the literature on health subjects to these women. A report of the work in New Zealand I mailed to each member of the meeting this week. The negroes read every word and carry the message to every negro home. Before closing I want to say this: that in asking the white people to go and talk to this group that every white person who has been there has said to me afterwards: "Dr. Hays, I got more inspiration, more enthusiasm, than I put in it." These negro women are going to renovate, and are renovating, every negro home in the town of Oxford.

Dr. T. A. Williams, Washington, D. C.: May I have the privilege of a word? I want to speak about the nurse. I have been greatly admiring what Dr. Hays has done. But I want to speak of a different attack on the problem. It is as a father and as an observer I am speaking. The problem was one which impressed me very strongly in Washington when I first came there. I noticed the difference in behavior of

different servants. I felt that was a reflection of their masters and mistresses. The negro is an imitator. The old darky of the South imitated the fine behavior of his master and mistress. They do not have the same opportunity now of imitating the fine behavior. It seems to me this problem is the same all over the world, namely, there has been a loosening of the influence of the home, and the result has been frivolous behavior on the part of the servant class all over the world, and the negro feels that difference. It seems to me that Dr. Hays's efforts might be supplemented by instructing the white people, which they in turn would teach to their negro servants as an object to be obtained, whereby the negro, always desiring to emulate the white man, would receive an immediate practical demonstration each day. Of course, I know there is a class of careless young women who will not be influenced by such things; but for the most part the negro servant is desirous of emulation, and besides has a very strong natural affection for the child. An effort of that kind, supplementing work among the negroes themselves, should be of great interest not only to the negro servant, but to the masters themselves, who in instructing their servants gain a better grasp of the matter of good hygiene and morals.

Dr. K. P. B. Bonner, Morehead City: It seems to me that the solution of this nurse problem is easy if only we will bring it about. It is the duty of the medical profession to use their influence toward securing for the child the nurse that it needs—and that is the natural nurse, the mother—in instructing her how to take care of her child. One of the most striking illustrations that I ever saw occurred in my practice about five or six years ago. I was called to see professionally a child, the mother of whom was a most intelligent and refined woman. She occupied the very highest social position and the demands upon her from a social standpoint were well-nigh impossible to refuse, but you never saw her. She was entirely in the background. As a matter of fact, she was the wife of the manager of the Atlantic Hotel, and usually such demands cannot be avoided. I did not understand why the lady was never seen until called to see one of the children. When I got there she remarked to me: "Here are two children, one of three and the other of thirteen months, and, Doctor, you are the first doctor that has ever been called to one of these children. These are scientific children, they have never had a day's illness." She said: "This particular trouble was brought about in a moment's inattention on my part when

I entrusted it to a darky and the darky gave it something that disagreed with it." She took the children and was a mother in name and in reality as well. That is the solution of the nurse problem, that is, that mothers should be mothers to their babies.

Dr. Arch Cheatham, Durham: I don't know that I have anything special to say, only I want to emphasize what Dr. Hays has said along the colored work. Four years ago, after quitting the regular work, I went into the health department, and I found on study that the death rate was much larger among the colored people than the white. I set about to correct that condition, and the first thing I did was to organize them as best I could, and get in touch with the leading darkies, as Dr. Hays suggested, and I found them very responsive. The next year I put in operation a colored nurse that works entirely with the colored people. The death rate in the colored population of Durham dropped from twenty-two and a fraction down to eighteen and a fraction at the end of the first year's work among them. These are the figures, but when you go into the homes and go around to the schools where this woman works you will find evidence of remarkable improvement. In other words, if you want to lead the colored people, and if you want to raise the ignorant white, you will have to get right down beside them and study them at short range in order to bring them up. You cannot stand on the platform and make eloquent talks, you cannot ride around in your automobile and wave your hands and get results. You must go into the homes, and see the condition in which they are living if you want to improve their condition. It is well enough to have our ideals as to what the nurse should be, it is all well enough to state those matters; but when you want results you must go to the homes and schools and educate the young girls, and then you can get some improvement along the nurse line, but you cannot expect to have nurses of the proper kind, or improve conditions, unless you go right down and get right down with them and work with them.

If you will pardon a personal reference, I go to all the public colored school commencements, and I spend most of the day with them. I make talks occasionally; and when going around visiting the negro schools I carry the negro superintendent of public instruction, and the negro nurse, and they talk as I dare not talk to them. They take whatever they say in a kindly way and are willing to profit by it. They get after them and tell them that soap and water is the greatest thing for them to use, and "before you go to church use soap and water and leave cheap perfume and powder alone." The negro and poor perfume make a mighty bad combination. When we were running a campaign on

teeth and adenoids last year, there was in a colored school only one negro child that knew what a toothbrush was. I gave to each child a package of tooth paste who presented a toothbrush, and they have to sign a card to use the paste. This school that had only one child who had seen a toothbrush came up with 100 per cent. I might have gone there and talked a year with little result, but when I carried the negro nurse she knew how to get next to them. You have got to coöperate and you will have to get down with them to find their troubles. In other words, a doctor has got to diagnose his patient before he can apply the remedies, and he can't make a diagnosis without examining his patient.

Dr. J. C. Wiggins, Winston-Salem: I am glad my paper brought forth so free a discussion. It seems to have emphasized just those facts which all of us realize need more attention in general practice with children. I did not mention anything in my paper that had not occurred in my own practice dozens and, in some cases, hundreds of times. It is not imaginary at all, and I drew attention for the purpose of impressing upon mothers the responsibility and the care that should be theirs. It does not make any difference how much we admire the woman or how much we would like to remove the responsibility, that is not the question, but for the neglect, for the lack of care by the nurse, in the end the mother must be responsible, just the same as a railroad superintendent is held responsible for a wreck whether he is on the scene or not. The mother is mistress of her home and she must see to the care of her child.

It is a good thing, it is an important thing, that a mother should receive instructions in prenatal care; that is one reason why she should see a physician as soon as pregnant. I always give a pregnant patient two typewritten pages of instructions. It is calculated to make her period of gestation lighter in every way.

Another thing Dr. Rankin referred to: the primary importance of feeding. If we can get better nurses the question will be largely obliterated.

Just another thought is this: It is a mighty good thing to be here and to talk and to get enthusiasm and to exchange ideas, but is there not some way to raise money enough to get our city officials to attend these public health meetings? It will take money to do it, but there is no other way. It is almost impossible for us to carry back home in any other way the enthusiasm which is needed to convert the city administrations. We ought to have our city officials here to see for themselves where the

money is needed. I think that is one of the most helpful things we could do: get money to provide for the attendance at these meetings of the city officials.

HEALTH INSURANCE.

Joseph B. Greene, M.D., Asheville, N. C.

In discussing the subject of health insurance for wage-earners, it is not my purpose to go into every phase of this important and intricate subject, but rather to give an outline of its plan and its scope. It is at present in its formative stage, so to speak, and will require a close study by our lawmaking body, our own profession, employers of labor and employees themselves before we secure a law that is satisfactory to all concerned. Fortunately we can profit from the experience of the working of the insurance law of Germany and England, and other advanced European countries, in formulating our own law, so as to have it conform to the American standard of requirement.

Health insurance was first adopted by Germany in 1883 during the time of Bismarck when he appreciated the great economic and social need of wage earners, particularly among those of the low-scale group against the financial stress incident to sickness. Like all advanced social laws, this one met with serious opposition at first from various sources. The employers of labor complained that on account of the great tax on her industries Germany would be unable to compete with other manufacturing countries and would thereby lose her commercial supremacy. From the wonderful advance made in wealth and power by the German Empire between the time of the enactment of this law and the outbreak of the present war (1914) we know how erroneous these dire predictions have been. From a public health standpoint, particularly in the prevention and control of tuberculosis, few countries have made greater strides than Germany, and the effect of health insurance on the welfare of wage-earners can hardly be overestimated. Another valuable influence of this law in Germany has been the more friendly relationship between the employers of labor and the working man. It was my privilege some years ago to visit one of these model insurance sanatoriums near Berlin, where working men and women of small means were cared for. The importance of removing tuberculous infection from the home, particularly where children are found, is too evident to require emphasis before this Society. We know in the coun-

try that low-paid employees are usually denied the benefits of sanatorium treatment for tuberculosis, which means so much from an educational and preventive standpoint. Other countries, as France, Austria, and Switzerland, soon followed in the wake of Germany in the enactment of health insurance laws.

England, in her conservatism, was not aroused to the importance of this advanced social and health legislation until January, 1913, when Lloyd George became Chancellor of Exchequer, and in his wisdom saw the need of the working men and women of Great Britain for some form of health insurance, which would afford them competent medical care at a reasonable cost, and at the same time give a proportionate weekly income to meet the needs of the family. The employers of labor and many physicians opposed this form of legislation, terming it socialistic and a species of paternalism. The British Medical Association strongly opposed the enactment of this law because of certain features that seemed unfair to the physicians. The medical profession of England was placed in the humiliating position of having to accept the law which they had openly opposed. In spite of this opposition it is recorded that on the day following the enactment of this law that 10,000 physicians registered on the panel to practice under this insurance act. Within a few months the British Medical Association released its members from all obligations in the premises and permitted its members to register to practice under the new law. It would have been better if the British Medical Association had recognized the social and health advantages according to the low-paid laborers of the Empire instead of holding out against the law which the wisest statesmen of England had regarded as in the public interest. It might be of interest to relate, according to a statement of Lloyd George, now Prime Minister of England, that the average annual income of the physician practicing under the Insurance Act, was raised by about $700. This, of course, meant more work, but it also meant a certain fixed income to the physician, which every medical man must appreciate.

It has been estimated that a hygienic standard of living in this country requires an income of between $800 and $900, estimated on a basis of a family of five. These investigations were carried on in our largest cities, so for smaller communities these figures might be reduced to $700 or $800, though these estimates were made by Warren of the Public Health Service two years ago, before the present rise in the cost of living. Every public health officer appreciates how dependent morbidity and mortality are upon proper food, clothing and housing conditions. It has been estimated that about one-half of the native born families and about two-thirds of the foreign born families in this coun-

try have incomes less than $750 a year. These estimates include incomes from all sources, children working, boarders and lodgers. It is easy to understand that working people of this scale of income have no saving laid aside for an unexpected illness or birth. This class forms a great portion of our charity practice, and in the larger cites they are cared for at public dispensaries and hospitals when sickness overtakes them. When the bread-winner becomes sick and his pay stops, there is in this country, no provision for the care and support of the family. The families in such cases become at once dependent upon public charities or some form of private charities as exist in the larger cities. In smaller communities, where no such charities exist, destitution and suffering inevitably result.

Under the proposed insurance act such wage-earners would receive in addition to medical care two-thirds of the weekly wage while at work. This system of insuring against sickness would give the recipient a consciousness of freedom and independence instead of the feeling that he was a ward of charity. I once heard a prominent physician say that when one accepts charity he loses something which is difficult ever to regain. There is still a worse stage of our present wasteful and unsocial system, and that is the fact that many of our citizens, especially natives, are too proud to accept charity, so are condemned to suffer from neglect, and they fall a ready victim to patent medicines, quacks and incompetent midwives.

We know that fire insurance in this country has for its object the distribution of the losses sustained by fire over a large number so the effects of the disaster would not be seriously felt by a single individual. We also know that fire insurance has stimulated fire prevention by emphasizing the employment of all adequate means for fire prevention. It has likewise been proven that the prevention of sickness is stimulated by the application of Sickness Insurance.

The successful operation of the Workmen's Compensation Law, which began to receive adequate attention in this country only a few years ago, gave the Health Insurance Law a tremendous impetus. Some form of compensation law is already in force in thirty-four of the fifty States and territories, and one was presented to the Legislature of North Carolina. The intent of this law is to make the employer of labor, or rather the industry, responsible for the accident without the long and expensive court trial which has been the custom in the past. This court procedure has proven expensive to both parties concerned, and often the verdicts were unfair, sometimes to the employer and at other times to the employee. However, there is this difference between the Workmen's Compensation Law, itself a form of social insurance, and the

Health Insurance Law as proposed, in that the employer pays all the damages in the Compensation Law provided there be no willful neglect on the part of the employee. Some shortsighted employers of labor predicted dire distress to their industries on the passage of the Workmen's Compensation Law, but in New York, which has one of the most liberal laws of this kind, there has been an actual decrease in the expenditure for accident cases. The money, however, has reached the victim of the accident without too much waste for court cost and lawyers' fees. I would like to state to the credit of the legal profession in passing that various bar associations have indorsed some form of Workmen's Compensation Law in spite of the inevitable loss to the profession in fees from damage suit cases. There is another fortunate outcome of the Compensation Law which has a distinct bearing on the effect of adequate Health Insurance Law, and that is the marked prevention of accidents due to the employment of safety devices. The watchword has become "Safety First." It is expected that health insurance will stimulate preventive medicine by placing the responsibility of the disease where it rightly belongs. As Warren says, "Sickness may be due to the fault of the community as, for instance, in not affording a pure milk and water supply." It may be the fault of the employer as when he exacts of his labor too long hours, or when the place of employment is unsanitary. Then again, the disease may be the fault of the employee due to unhygienic home conditions or to vicious personal habits. Recognizing the threefold responsibility for disease—that is, the employer, the employee, and the State—it seems wise to require that the employer pay two-fifths of the cost of the insurance, the employee two-fifths, and the State the remaining one-fifth. It has been proposed to include within the terms of the bill all manual workers and all nonmanual workers making less than $1,200 a year. Home workers, such as maids, cooks, etc., are included under the law. Provision is made for hospital care, medicine, nurses, dentistry, appliances and sanatorium care when required. During the illness of the wage-earner the family is to receive two-thirds of the regular weekly pay, provided the patient receives treatment at home. When the worker is sent to the hospital, the income to the family is reduced to one-third of the weekly income. The allowance for wages is not to be paid to the dependents for more than twenty-six weeks in one year, thus avoiding the financial drain on the resources by treatment of chronic incurable cases.

Various objections have been offered to the proposed legislation, but chiefly by those who consider it paternalistic and calculated to weaken

the individual. In answer to this it might be said that such a law is nothing like so paternalistic as compulsory school attendance with the furnishing of free books and, at times, free lunches for the pupils. No one would now say that the public schools are not for the common good. Some of the employers of labor are opposed to the enactment of the insurance law just as they opposed the Workmen's Compensation Law on the ground that it is too great a tax on the industry. The answer to this argument is that as the industry plays a part in the causation of disease it should be taxed with a part of its cost, just as every manufacturing plant lays aside so much each year for the wear and tear on machinery. Some short-sighted employees are also opposed to the Health Insurance Law on the ground that in their opinion the employer should bear all the cost of the insurance. This would seem unreasonable, as disease at times can be laid at the door of careless and vicious employees. Then, again, it would seem desirable to have the employees share in the administration of the fund, which could not be the case if they contributed nothing to its support.

I wish to say in conclusion that I trust that the medical profession will view this proposed insurance law with a friendly attitude, for the more I study its operation in other countries which have tried it, the more I am convinced that its enactment in our country will mean much for the social and health condition of our people, particularly those of the low-paid group.

Dr. D. C. Absher: In connection with what Dr. Washburn and Dr. McBrayer have said about the organization of county public health work, Dr. Rankin has just received the following telegram from the International Health Board:

New York, N. Y., April 18, 1917.

Dr. W. S. Rankin,

North Carolina State Medical Society, Asheville, N. C.

International Health Board authorized acceptance your proposition in principle, an undertaking regarding budget, Washburn, and other details. Will necessitate conference. I can come to North Carolina by close of April. In meantime you and Washburn may develop details for carrying out arrangement. My compliments to State Board and Society.

John A. Ferrell.

GYNECOLOGY

URETER STRICTURE IN WOMEN; REPORT OF CASES.

Guy L. Hunner, M.D., F.A.C.S., Baltimore.

Ureter stricture or narrowing of the ureter lumen due to intrinsic inflammatory changes in the ureter wall, is a disease far more common and of vastly more importance than the literature or our previous experience has led us to believe.

In a preliminary paper read before the Genitourinary Section of the New York Academy of Medicine in January, 1916,[1] the author reported fifty cases of ureter stricture occurring in his practice up to November 1, 1915. In the same period of thirteen years of practice there were records of forty-nine cases of nephrectomy for tuberculosis and thirty-nine cases of stone in the ureter. In the year from November 1, 1915, to November 1, 1916, or since becoming alive to the importance of the subject, and since looking for stricture, talking stricture, and having confréres refer suspected cases for diagnosis and treatment, the author has seen forty-two additional cases. This paper will deal in a statistical manner with the first fifty cases only, although the general conclusions will be based on an experience with ninety-two cases.

ETIOLOGY.

Up to within the past few years most of the literature on this subject has been devoted to the so-called congenital stricture of the ureter.[2],[3]

Kelly[4] anticipates our more modern literature of the subject by stating that "strictures are caused by an inflammation in the ureteral walls produced by the commoner pyogenic cocci, by the gonococcus, and by the tubercle bacillus. The commonest form of inflammation is that due to the tubercle bacillus, and the rarest in my experience in women is due to the gonococcus."

Garceau[5] on the other hand, says, after reviewing the literature, and in the light of his own experience, "the chief cause of fibrous stricture is gonorrheal infection."

Furniss[6] takes definite issue with the prevailing opinion that most ureter strictures are congential in origin and, from a study of his cases, concluded that infection plays the important part in the production of

ureteral stricture. He concludes that the infiltration in the ureter is resultant on acute hematogenous infection of the kidney, which often persists as a pyelitis, ureteritis, or secondary cystitis.

Furniss quotes Sugimura[7] as having studied the lower end of the ureters in the bodies of twenty-five patients, who had had cystitis, but died of other causes. He found changes of an inflammatory type in the submucosa and muscularis and was of the opinion that the infection extended through the lymphatics and not along the mucosa.

Necker[8] exhibited before the Deutsche Gesellschaft für Urologie, at the Congress in Vienna in September, 1911, pyelograms of cases of pyelitis, all showing some dilatation of the renal pelvis, and in explanation said that they were cases of ureteral obstruction with secondary infected hydronephrosis.

Kelly and Burnam[9] speaking of traumatic stricture, voice our common experience in stating that "traumatic stricture of the vesical end of the ureter following the injuries of labor and of surgical operations, especially the Wertheim operation for cancer of the cervix uteri, is quite common. As a rule, the trauma has so interfered with the blood supply of the organ that there are lateral necrosis, or a continuous leakage of the urine, and a ureterovaginal fistula. The spontaneous healing of such a fistula, almost invariably, means stricture."

Gunshot and stab wound injuries are rare. Morris[10] collected reports on five such injuries. My list contains one case of gunshot injury developing slight hydronephrosis and kidney colics eight years after the injury and recovering after two dilatations.

Severe traumatic accidents as the cause of stricture are rare, just as one would conclude from the anatomy of this long flexible organ, well protected along the spine and attached at either end to a movable organ. Any accident severe enough to rupture the kidney or bladder or to crush the bony pelvis might well result in ureter stricture, but the history would be such as to suggest the etiology in a case of this nature.

Syphilis should be kept in mind as a possible cause of ureter stricture.[11]

Ureteritis cystica may cause ureter obstruction from the large size of some of the cysts, but this condition, while probably of inflammatory origin, cannot be classified as ureter stricture.[12]

Gynecologists might question the possible relationship between infected cervical glands and ureter stricture. As we shall learn later, the vast majority of these strictures occur in the broad ligament region and it is but natural that we should suspect the cervix as having a possible causal relationship.

It is probable that ureter stricture occurs more frequently in women than in men and one is inclined to attribute this to the infections incident to childbirth. Opposed to this theory is the fact that in a considerable proportion of cases the symptoms of stricture begin in childhood or occur in women who have never married and in whom we have no reason to suspect a gonorrheal infection. Our failure to recognize the disease in both sexes has undoubtedly been due to our ignorance of its frequency and consequently to a failure to look for the lesion.

While I have not seen reason in any individual case to attribute ureter stricture to a cervical infection, I have become suspicious of the etiological relationship between focal infections and certain cases of cervicitis. We have a type of urethral inflammation in which the vulva and paraurethral glands are inflamed and the patient has an inflamed cervix furnishing considerable leucorrhea. This type of inflammation is particularly likely to occur in adult maiden women, who show no other evidence and give no history of onanism or of gonorrheal infection. I think that time will demonstrate that the group of inflammatory foci in the pelvis is secondary to a distant common focus of infection.

The frequent association of ureter stricture and venous phleboliths in the immediate neighborhood speaks for a common origin for the inflammatory process resulting in the two conditions and suggests that some of these infections may have originated in the genital tract.

While we must admit the possibility and probability of any of the foregoing factors playing a role in the etiology of certain ureter strictures, I am firmly convinced that the majority of ureter strictures, excluding those of tuberculous origin, should be classified as simple, chronic stricture, and that they have their origin in an infection carried to the ureter walls from some distant focus such as diseased tonsils, sinuses, teeth, or gastrointestinal tract.[13] This conception of stricture postulates that in the majority of cases ureter infiltration is primary, and that the other urinary tract lesions so often associated with stricture, such as stone in the ureter, hydronephrosis, pyelitis, and pyelonephrosis, are secondary.

As reported in my first paper on Chronic Urethritis and Chronic Ureteritis Caused by Tonsillitis, read before the 1910 meeting of the Southern Surgical and Gynecological Association at Nashville, and as borne out by considerable experience since that time, I have the proof that certain obstinate cases of chronic urethritis, which will not heal under the ordinary methods of treatment carried on over a long period of time, will promptly become absolutely well by getting rid of the distant focus of infection.

In the case of ureter stricture it will probably take some years of experience before we can claim to have satisfactory proof of the above thesis. Not only must we collect a large number of cases similar tc Case 7, reported in the above paper, whose symptoms of ureter stricture began soon after an attack of tonsillitis, but we must have a series of cases of ureter stricture in which relief fails through a long period of treatments and is then obtained after the distant focus of infection has been discovered and corrected.

I have a few cases who have persistently refused to show material improvement in symptoms until after removal of the infected tonsils or teeth, and another list of cases who have been dismissed as well after dilating the strictures or after getting rid of the pyelitis by dilatation of the stricture and lavage, and who have returned with their old symptoms after a fresh tonsillitis attack or after undergoing dental work.

SYMPTOMS.

Pain. Pain is the most universal symptom of ureter stricture and only in rare cases is there absence of pain. To attempt to draw a pain chart of this affection one would need a diagram of the human frame extending from the diaphragm to the ankles. The most deeply shaded portion of this chart would center in the local area of ureter inflammation, or in other words in the broad ligament region deep in the pelvis.

In my preliminary paper above mentioned as read in New York, I said, "It is comparatively rare to have our attention directed to localized symptoms due to the stricture. The patient usually complains of pain in the kidney region or of bladder symptoms or of both, and the stricture is found in the attempt to fathom the cause of the symptoms."

This statement was made on a study of my first fifty cases seen at a period when ureter stricture as an entity was not in mind. Many of those cases came late when the kidney lesion was advanced and overshadowed other conditions. Since making that report and realizing the importance of ureter stricture, better histories have been obtained, and it is rare to find a patient with stricture who does not complain of a pain or of a nagging discomfort in the site of the ureter inflammation.

From this center of inflammatory discomfort in the pelvis the pain may radiate in any direction, upward toward the kidney, laterally into the hips or groin region, posteriorly simulating a sacroiliac joint condition or a sciatica, and downwards into the thigh and leg either posteriorly or anteriorly.

Next in frequency to the local ureter pain is pain in the kidney region. This is probably at times a referred pain from the inflammatory area in the ureter, but it is usually due to overdistention of the kidney pelvis.

At times on passing the renal catheter and impinging against the tender stricture area with the wax tip and again with the wax bulb, the patient refers the pain upward to the kidney region.

The kidney pain is usually elicited only by injecting the pelvis to overdistention. Frequently we get the history that the patient suffered at first with a more or less constant pain low in the abdomen, and that she later developed intermittent attacks of pain in the kidney region. Early in the patient's history these intermittent kidney attacks came on only at the menstrual period or on getting the feet wet, or having some unusual exposure, which conditions would favor the swelling shut of an already narrowed area in the ureter. Later the pain in the upper flank or lumbar region may occur at frequent intervals or become as constant as the ureter pain.

Occasionally the pain occurs first in the kidney region and develops later in the lower abdominal quadrant or region of the ureter stricture.

Actual pain in the bladder occurs only in the exceptional case, and it is probably a referred pain from the kidney as it accompanies the severe acute renal attacks simulating stone in the ureter in which there is likely to be both bladder and rectal tenesmus.

Discomfort in the bladder and frequency of voiding are not at all uncommon with the intermittent renal attacks, and these symptoms may be present in cases complaining only of the ureter pain.

Urine Examination. The urine may be quite negative on repeated careful centrifuging and microscopic search. If there is an associated pyelitis the urine shows the pathologic features and variations common to that condition. If the urine is not infected we may still find a few leucocytes or a few erythrocytes or both. These may come from an ulcer area at the site of stricture or we may find them increased in number after one of the acute kidney attacks, when they probably result from the trauma to the kidney pelvis.

Fever. Chills and fever are common in the cases with urinary infection. A case with infection may go for weeks or months without chills or appreciable fever and may suffer only a malaise and general depression. Given any condition causing the stricture area to close and the patient develops fever, often with chills, pain and general prostration as usually seen in acute pyelitis.

It is important to note that a patient may develop fever even of a high grade without infection of the urine and with only one ureter

involved. The urine may be quite normal or there may be a few erythrocytes. The kidney is enlarged, tender and painful. A few of the cases with sterile urine have shown a slight daily rise of temperature and these are likely to have nausea, headache, or other uremic symptoms.

One patient with a daily rise of temperature of 99° to 100° extending over a period of four weeks and a leucocytosis of 19,000 reducing in the same period to 12,000 had a normal temperature and leucocyte count of 10,000 ten days after tonsillectomy.

Miss X., aged 22, nurse at the Hebrew Hospital, was awakened one Friday morning with a severe cramplike pain in the right kidney region extending downward and forward to about the pelvic brim region. She had several attacks with severe pain, nausea and vomiting but kept on duty until the following Monday when she reported to the superintendent of nurses that she could not continue with her work.

The first attack came on at the end of a menstrual period. For two nights before the attack she had been up frequently to void, and had too frequent voiding up to the time of entering the hospital as a patient.

Drs. Adler and Hirsh were called to see the patient and because of the character and location of the pain and the presence of microscopic blood in the urine, they considered the case one of stone in the kidney or ureter. X-Rays were negative and they called me into the case on October 20, the twelfth day of her illness.

Because of a daily rise of temperature to above 99 deg. and a leucocytosis of 19,000 with high percentage of polymorphis, we considered seriously the possibility of an appendicitis, with a high posterior position of the appendix to account for the pain phenomena. The presence of the above signs and symptoms without pus in the urine argued against a kidney lesion. Blood in the urine is not particularly rare in appendicitis. The patient's pain was more pronounced and more prolonged than one usually sees in appendicitis. The patient was rather stout and considering the possibility of the X-Ray missing a stone, I catheterized the kidney with a wax-tipped bougie. This came back without scratch marks. The meeting of the catheter tip with the kidney pelvis caused an increase of the patient's pain which she likened to her former pain. The injection of the kidney pelvis also exaggerated her former pain and the pelvis seemed to be rather smaller than normal, returning only 6 cc. after dilating to discomfort. This test of the kidney was followed by three days of intense pain instead of the usual few hours of discomfort caused by such examination. The patient had to be chloroformed several times to control the pain. The temperature conditions and the leucocyte count remained about the same.

In view of the pain phenomena during catheterization and the great increase in pain after the catheterization, I became more convinced of the possibility of ureter stricture although there had been no apparent obstruction to the catheter. The possibility of stricture had been in mind from the first, when, on taking the history, I found that the patient had been troubled with her tonsils from time to time all her life, her last definite attack having occurred in March, about eight months previously. Another factor in favor of ureter stricture was the presence of a dense stricture of the urethra. The tonsils appeared normal on examination.

One week after the first catheterization I again catheterized, this time using a wax-bulb. Again I could not detect obstruction but the bulb must have had a beneficial effect for the patient did not have the severe pain reaction. Again the kidney pelvis seemed rather smaller than normal.

A week later it was time for the patient to menstruate and she was having increased pain in the kidney region. On catheterizing with the wax-bulb catheter, I did not detect obstruction but the wax-bulb, which was made of white wax and olive oil, equal parts, was partially mashed on withdrawal. A test of the kidney pelvis at this time when the patient was about to menstruate and was having increased pain in the kidney region, showed a capacity of 11 cc. as compared with 6 cc. on the two former tests. A week later or five weeks after the beginning of the patient's symptoms, my wax-bulb was definitely obstructed at a point about 3 centimeters after entering the ureter, and on its withdrawal it was so hung in the stricture area that I feared it would drag off the catheter. Fortunately I had a bulb of pure wax on this occasion and it returned intact. After this catheterization the patient had considerable pain for an hour or two due to the trauma of dilating the stricture of the urethra and of the ureter. There was none of the increase of kidney pain as on former treatments. A few days later I again dilated the ureter stricture with a wax-bulb of about 4 mm. diameter and then referred the patient to Dr. Lee Cohen for tonsillectomy. Dr. Cohen reported that on superficial examination the tonsils appeared healthy, but at operation they were found to contain large lacunae of free pus.

Gastro-intestinal symptoms are common. They are probably of two-fold origin arising either as a central nervous system reflex or as a result of toxic absorption. We see the same phenomena in certain cases of stone in the ureter and in cases of ureter blockage from any cause.

The symptoms vary from a slight nausea or aversion to food, to the most extreme and persistent nausea and vomiting leading to threatened starvation. Gaseous distention is a frequent symptom. Occasionally there is complaint of rectal tenesmus and desire to stool. Pain just before or during stool is present in some cases, and is probably due to the fecal matter passing over the tender peritoneum at the site of the ureter inflammation.

Case 66 learned by experience that it was more agreeable to omit the meal preceding the dilatation and lavage; otherwise she lost the meal by vomiting.

Case 65 had suffered for a year with repeated attacks of diarrhoea and had lost forty pounds in weight. Dr. Barker found that she had an associated achylia gastrica and she was given the dilute hydrochloric acid treatment. After dilatation of her ureter strictures her diarrhoea attacks ceased and she gained eleven pounds in two weeks.

Colitis may occur as a result of stricture. I recently referred a patient to Dr. Ernest Gaither because of much pain in the sigmoid region, through the left hip, and in the upper flank, together with frequent stools in which she passed mucous casts. After a careful study of her

case Dr. Gaither asked me if it could be possible that she was suffering with ureter stricture. That this diagnosis had not occurred to me in going over her symptoms was the more remarkable because she was Case 2, reported in my paper above referred to on Chronic Urethritis and Chronic Ureteritis Caused by Tonsillitis. Urethritis symptoms of two years duration had resisted treatment for several months until her infected tonsils were removed. She had remained well of the urethral symptoms for more than six years and then began to complain of the colitis symptoms which at Dr. Gaither's suggestion I found were due to a dense stricture of the left ureter. Manipulation of the stricture area and injection of the slightly dilated kidney pelvis imitated all of her discomfort on the left side, and her colitis symptoms ceased after the second ureter dilatation.

Mental Symptoms. One of the remarkable results of this study has been to find that a patient may have one normally functioning kidney, and only a slight degree of stasis on the opposite side which apparently results in mental disturbances, headaches, nausea, fever, and a general picture usually associated with the uremic state.

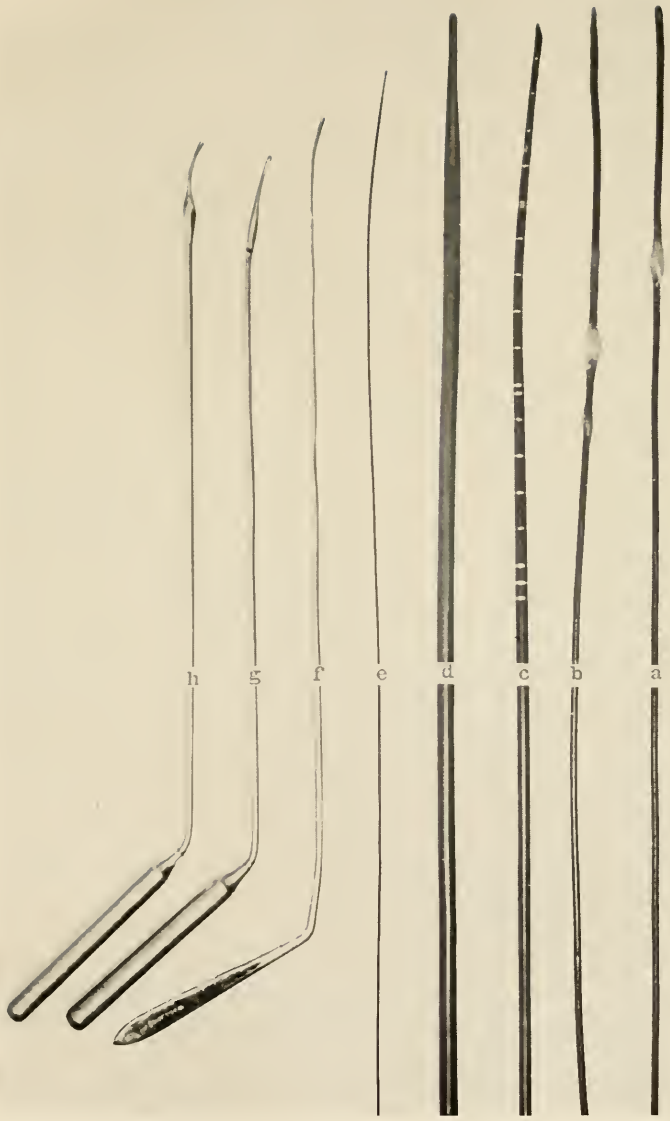
A physician suffered for about a year with a morbid mental state entirely foreign to his usual happy buoyant disposition. Delusions and hallucinations worried him daily and suicide became an urgent impulse. He was entirely relieved after Dr. George Walker dilated a ureter stricture.

MORBID ANATOMY.

We have had opportunity to study the stricture macroscopically in eight operation cases. The inflammatory area varies from a slight annular thickening in the ureter wall to a condition of diffuse cartilage-like thickening which may occupy several centimeters of the ureter and form a mass a centimeter in diameter. Multiple annular strictures are not uncommon.

The infiltration may be confined to the ureter wall or there may be much periureteritis. Often at operation one cannot tell by palpation whether he is dealing simply with a stricture or with a stricture containing a stone.

I have had opportunity to study the stricture microscopically in only three cases, in cases 6 and 26, who had resection of the ureter and implantation into the bladder, and in case 50, who had nephrectomy. The microscopic picture is one of chronic inflammation of all coats of the ureter wall, the epithelium is changed from the transitional stratified type to a more squamous type and in one of the specimens there was an ulcer with loss of the epithelium.



a. Round-tip catheter with wax tip and bulb.
b. Olive-tip catheter with wax tip and large wax bulb flanked by smaller bulbs.
c. Garceau whistle-tip catheter.
d. Gum elastic bougie with olive tip.
e. Whalebone filiform.
f. Metal searcher with olive tip.
g. Metal dilator with curved olive tip and metal bulb of 3 mm. diameter.
h. Metal dilator with curved olive tip and metal bulb of 5 mm. diameter.

Location of the Stricture. The stricture is located in the broad ligament region or within 6 centimeters of the bladder in by far the greatest number of cases. The next most frequent location is at the bifurcation of the internal iliac vessels or about 8 to 10 centimeters above the bladder. This is from 3 to 5 centimeters below the pelvic brim. At both of these regions we have a group of lymphatic glands and at operation these are sometimes found enlarged. Contrast these locations with the generally accepted view that ureter stricture is congenital and occurs at the points of congenital narrowing, namely, where the kidney pelvis enters the ureter, at the pelvic brim, and in the bladder wall area.

In the preliminary report on my first fifty cases twelve cases were reported as bilateral. Since then three of the forty-eight cases, reported as monolateral, have returned with stricture on the opposite side. Of the thirty-five monolateral cases, twenty were on the right and fifteen on the left. Of these sixty-five ureters with stricture the lesion has been located within 6 centimeters of the bladder in fifty-six, at the region of the bifurcation of the anterior iliacs in eight cases, and next to the kidney in one case.

Effects of the Stricture on the Upper Urinary Tract. Of the utmost interest is the relationship between ureter stricture and other lesions of the urinary tract. This study has done much to explain the etiology of many urinary tract lesions concerning which we have had erroneous ideas in the past.

The profession has become accustomed to view slight dilatation of the pelvis and ureter as secondary to an infection of the urine. It is even held for the early cases with only slight dilatation and sterile urine that such cases came by the dilatation through a previous infection.

This view so generally held is well expressed by Braasch.[14] "Any considerable degree of infection involving the renal pelvis and ureter will be followed by dilatation. This dilatation is not caused by mechanical obstruction, but is the result of change in the tissues and consequent retraction in the walls of the pelvis and ureter. The dilatation may vary from a scarcely recognizable irregularity of the calyces or ureter to complete destruction of the pelvis. Evidence of an inflammatory process which has once caused dilatation will rarely be entirely obliterated. Such inflammatory changes in the pelvic or ureteral outline may be the only evidence of previous infection. The character and degree of an inflammatory process can more often be determined by means of the pyeloureterogram than by any other method."

A priori one would expect the inflamation and infiltration to result in shrinkage rather than in dilatation of the tract.

While I consider it possible for the urine to become infected at the same time that the infection, which is to result in the future stricture, is laid in the ureter wall, I think these studies prove conclusively that the usual sequence is focal infection settling in the ureter wall, stricture formation, stasis and secondary infection of the urine.

Although we believe we have demonstrated that most cases of dilatation of the kidney pelvis are due to mechanical obstruction in the form of ureter stricture, a surprising development has been the fact that many cases of ureter stricture causing typical symptoms are not associated with a dilated pelvis, and when the pelvis is not dilated, it is often contracted. These cases with contracted pelves are usually the most sensitive to manipulation and the contracted pelvis is probably explained by assuming that the extremely sensitive stricture area keeps up a constant pain reflex causing a tonic spasm of the musculature of the tract above.

Pyeloureterograms of these cases show that in some the ureter is contracted as well as the kidney pelvis, and in others the pelvis is contracted while the ureter is slightly dilated.

Several cases with normal sized or contracted pelves when first seen have improved in their general symptoms while having repeated dilatations, but the kidney pelvis has in the same time developed a slight hydronephrosis. The probable explanation of this phenomenon is that a tender ulcer in the stricture area has healed under treatment, thus releasing the reflex spasm, but the stricture is dense enough to keep up partial obstruction in spite of the dilatations.

In the first group of fifty cases there was no urine report on six cases. I have notes on culture-taking in twenty-seven of the remaining forty-four cases. In nine of these the urine was sterile. Of the seventeen cases in which there was no report on culture-taking, the urine from the kidney was free from leucocytes in seven, and was presumably sterile, which would make sixteen out of forty-four, or over one-third of the reported cases sterile. Ten of these seventeen cases without report on culture-taking had pus in the specimen catheterized from the bladder, and in seven of these the kidney specimen is also reported as yielding pus and possibly all ten cases were infected.

In the sixteen noninfected cases the average age was thirty-eight years, the average duration of symptoms two and a half years, and the average size of the kidney pelvis in ten of the cases was 19 cc., three of these holding 8, 11, and 12 cc. respectively and the others holding from 15 to 30 cc. In one exceptional case with symptoms of four years duration the pelvis had reached a capacity of 360 cc. without becoming infected. In five cases there was no note on the pelvic capacity.

Of the eighteen infected cases the average age was thirty-five years, the average duration of symptoms was four years, and the average size of the kidney pelvis in fifteen cases in which a record was made, was 98 cc. In four of these fifteen cases the pelvis was of normal capacity, 7 to 8 cc., showing for the eleven dilated cases an average capacity of 130 cc. In the cases with both pelves dilated the capacity is figured on the larger pelvis only. In the eighteen infected cases of the first group the colon bacillus was grown in thirteen, in five of these from both kidneys. In four cases staphylococcus only was grown, in one case a pure typhoid culture was obtained soon after recovery from typhoid fever. In one of the above colon bacillus cases colon was grown from one kidney and staphylococcus from the other, making five cases in which staphylococcus was grown.

Influence of Ureter Stricture on Stone Formation. One of the most interesting side-lights on ureter disease furnished by this study has been the revelation of the probable cause of most ureter stones. In operating for a ureter stone and finding it encased in dense infiltration tissue, we have heretofore considered the inflammatory area as due to the irritation of the stone. We now have abundant evidence to indicate that the stone results from urinary salts being deposited on the ulcerated surface of the stricture area.

Every surgeon sees an occasional case in which a minute stone or a nest of minute stones is found encased in a dense stricture area. It is quite evident that such small stones were not formed in the kidney to be stopped in a normal ureter, nor were they formed in a normal ureter. Such small stones would easily be passed entirely through a normal ureter.

There can be no doubt that an occasional stone formed in the kidney is blocked in a normal ureter. On the other hand I believe that some stones found in the kidney were originally formed on the site of a ureter stricture and after sufficient dilatation of the tract above, these stones have floated up into the kidney where they have increased in size. Another possible sequence is that a stone forming in a stricture area may develop sufficient pressure above to force it out of the stricture and into the bladder. In case 23, who had suffered with bladder discomfort and incontinence for nine months, a stone 15 mm. in diameter was removed from the bladder. The X-Ray revealed another small shadow in the left broad ligament region and investigation with the wax tipped and wax bulbed catheter demonstrated this to be a venous phlebolith, but the patient had two strictures in the broad ligament region and a left colon bacillus pyelitis with kidney content of 21 cc.

Case 71, aged 37 years, had suffered for eight years with left renal colic, the attacks becoming so severe recently that they required several hypodermics of morphia for their control. The urine was smoky with blood and continued pus and a colon bacillus infection. On passing a catheter prepared with small wax rings at intervals of 5 centimeters to locate the possible ureter stone, and with one large wax bulb to dilate the ureter, the catheter returned with scratch marks on all the rings within 20 centimeters of the tip. The eye of the catheter contained a particle of stone and the large wax bulb had imbedded in its surface about a dozen particles of stone. The patient was completely relieved of her severe colic attacks and subsequently had several dilatations of the stricture area until all her symptoms were relieved. She had the contracted type of pelvis holding but 4 cc. Scratch marks were never obtained after the first treatment which seemed to have entirely cleared out the incipient stone formation.

One of the strongest arguments for the relationship between stone formation and stricture is the finding of bilateral symmetrical stricture and a stone in one of these stricture areas, as has occurred in three of my cases. A large stone was removed from the right broad ligament area in Case 9 five years after I had been dilating strictures in the right broad ligament area and iliac gland region and in the left broad ligament region. The obstruction by the right broad ligament stricture and this stone had made a large dilatation of the right ureter in which at operation the stricture at the iliac gland region was seen to form a dense annular narrowing.

O. S. Fowler, of Denver,[15] has called attention to the possible importance of stasis in the etiology of stone formation. He attributes the stasis to a kink in the ureter due to prolapse of the kidney as demonstrated by the method he has done so much to develop of taking pyeloureterograms in the erect posture. Many of his roentgenograms, however, reveal ureters which are dilated below the point of kinking, as well as above, and I would interpret them as being cases of unrecognized ureter stricture low in the channel causing a dilatation of the ureter and kidney pelvis, and a prolapse of the heavy hydronephrotic kidney, causing apparent kinks in the upper ureter. I have several ureter stricture cases showing this kidney prolapse and apparent ureter kinking but they all show the ureter dilatation down to the stricture area.

Influence of Ureter Stricture on the Pyelitis of Pregnancy and Puerperium. Of my last seven cases of pyelitis developing during pregnancy or soon after delivery, three being bilateral, I have been able to demonstrate stricture of the ureter in all but one case. This is prob-

ably a much higher percentage associated with stricture than we would find in a longer list of cases. In most of these cases the stricture is probably present before the pregnancy and the added congestion of the tissues during pregnancy sets up a slight hydronephrosis which becomes infected during the pregnancy or immediately after.

Some of the cases of pyelitis of pregnancy due to stricture clear up spontaneously after labor when the congestion and edema incident to pregnancy disappear. Others continue as a chronic pyelitis until treated. Undoubtedly most of those cases of pyelitis of pregnancy which clear up spontaneously or after a few irrigations with silver solution do so because stricture is not present, or because the slight dilatation of the stricture incident to passing an ordinary renal catheter is beneficial.

That a case may clear up spontaneously in spite of ureter stricture is illustrated by a patient referred by Dr. Barker because of attacks of renal colic together with chills and high temperature. Fourteen years before Dr. Kelly was compelled to perform abortion for this patient because of bilateral colon bacillus pyelitis. She had no special treatment for the pyelitis, returned home with infected urine, and had had recurring attacks of pyelitis symptoms on the left side during the intervening fourteen years and on the right side for nine years. Examination revealed extremely dense bilateral strictures with kidney pelves smaller than normal and ureters of very slight dilatation. The urine contained many hyalin and granular casts and a few pus cells found to be coming from the left kidney. There was no infection. It could very well be argued that this patient had no stricture at the time of her pregnancy and that the pyelitis resulted in later stricture formation. My experience with such cases leads me to take the view above expressed, particularly as she had suffered all her life with tonsillitis and made no permanent progress with her ureter stricture dilatations until after the badly diseased tonsils were removed.

DIAGNOSIS.

The diagnosis of ureter stricture depends upon the history, urine examination, palpation of the abdomen with special reference to the kidney and ureter regions, palpation of the ureters through the vagina or rectum, cystoscopy, catheterization of the ureters by specially prepared catheters, and roentgenography.

The features obtainable by history taking have been discussed above under the section on symptoms. Experience has taught that we should suspect stricture in any case complaining of obscure abdominal symptoms particularly if they are in the lower abdomen and accompanied by referred pain in the hips and thighs. In addition to this history we

usually find that the patient has a history or shows evidence of tonsillitis, sinusitis, or bad teeth. Since having colleagues refer such obscure cases for diagnosis I have learned to place considerable importance on a history of previous abdominal or pelvic operations in which the patient failed to obtain relief.

Urine Examination and Diagnosis. In the section on symptoms we stated that the urine may be quite negative. This has undoubtedly been a source of frequent error in the past. Given a patient with symptoms that suggest trouble in the urinary tract we have been willing to exclude the urinary tract on finding normal urine. If the patient's symptoms strongly suggested stone in the ureter we have had X-Rays taken. We have the word of the X-Ray experts that they miss anywhere from 15 to 30 per cent. of ureter stones, which fact alone should demand examination with the wax tipped catheter in all cases of suspected stone. With the facts that the unassisted X-Ray will miss all ureter stricture cases and that the urine may be normal, we have thrust upon us a duty heretofore neglected, namely, to have all questionable cases investigated with specially prepared catheters and perhaps with the thorium X-Ray.

Palpation. There is often tenderness in the kidney region and the kidney may be somewhat enlarged and very tender during one of the acute pain attacks. The usual phenomena of an intermittent hydronephrosis may be palpated if this condition be present.

Palpation of the ureter over the pelvic brim may elicit tenderness and a desire to void. This tenderness over the pelvic brim regions has led to many useless appendix operations. With both conditions in mind when palpating, one can usually differentiate between them as the patient will indicate that her usual area of pain is deep in the pelvis back of the symphysis, although one may reach more tenderness at the pelvic brim region on abdominal palpation and mistake it for an indication of appendicitis.

Vaginal palpation will show the greatest tenderness to be in the broad ligament region in a vast majority of cases and one may actually palpate the node of thickening which in some cases cannot be differentiated from stone in the ureter.

One may easily mistake the ureter tenderness for a painful ovary.

Case 56, then aged 40 years, consulted me first five years ago complaining of some of the disturbances of the menopause and a nagging pain low in the left pelvis. She had been advised to have left oöphorectomy. I found that the left ovary, while apparently extremely tender, was of less than normal size, feeling like a senile fibrous ovary. I advised against operation. She recently consulted me again, having suffered intermittently with the same pain and having it recently much exaggerated after a long automobile ride. She had also developed considerable pain in the left kidney region, and feared that she might be developing cancer.

I suspected ureter stricture and found on bimanual examination just as found five years previously that the left ovary was small and hard and apparently extremely sensitive. By carrying the ovary medianward and isolating it from the broad ligament region it was not at all tender. Then by dropping the ovary and palpating the ureter by itself, it was found to be the seat of pain and tenderness. Two dilatations of her left ureter stricture have resulted in a most satisfactory clearing up of symptoms of six years' duration. There was a draining abscess at the root of one tooth and she was referred to her dentist to have X-Rays and the necessary dental work attended to.

Catheter Test. The crucial test in diagnosing ureter stricture is made with the wax-bulbed catheter. This, with other instruments used in getting past and treating stricture, will be described under the section on treatment. I do not consider obstruction to an entering catheter as diagnostic of ureter stricture. Repeated obstruction at the same point is certainly suggestive, but for a positive diagnosis I depend entirely upon the obstruction or "hang" of the wax-bulb on withdrawal. Obstruction of the tip at a certain point in the ureter and then obstruction of the entering bulb at the same point, and the going by of the bulb with a jump and sense of scar tissue grating are points upon which the experienced cystoscopist can rely with a fair degree of safety; but there are many conditions which may obstruct a catheter on entering, and it is better to depend upon the "hang" of the bulb, its jump, and scar tissue grating sensation as it comes through the stricture area on withdrawal. It has been a source of great satisfaction to the author and his associates in this work to find at operation on a number of cases how accurately the wax bulb has located the position and the number of strictures; and how in other cases with ureter obstruction but no "hang" of the bulb on withdrawal, the operation has explained the cause of the obstruction. It is important to remember that one may pass the ordinary renal catheter of large size without detecting a stricture. The presence of a hydronephrosis should make one suspect stricture and test for it with the wax bulb. In case of a pyelitis in which catheterization is followed by temperature reaction or a chill one should suspect stricture and should wait at least a week before making the next test with the wax-bulb. Some cases without infection show a marked reaction after catheterization, having an elevation of temperature and an unusual amount of pain and sometimes nausea and vomiting. Any of these unusual reactions after the passage of the ordinary catheter should prompt one to test for stricture. In some of my pyelitis cases I have not suspected stricture until the patient failed to show improvement after repeated lavage.

In case 49 I diagnosed stricture from the correspondence concerning the case, this indicating that the patient had but one kidney and this the seat of an infected hydronephrosis. She was getting lavage treat-

ment but frequently had severe temperature reaction, chill, and prostration after the treatment. The correspondence also related that she had lost one kidney by operation at age 22, after suffering with intermittent hydronephrosis attacks since babyhood, and that she had always had tonsillitis.

Röntgenography. The taking of pyeloureterograms is not necessary in making a diagnosis except in the few cases in which we cannot go by an obstruction in the ureter. Under such conditions if we can pass an X-Ray catheter with whistle tip to the point of obstruction, we can often get the contrast solution to go beyond the obstruction and intensify a stone, if it be present, or outline the character of the obstruction and the condition of the tract above.

While the X-Ray is not necessary in making a diagnosis in most cases of ureter stricture and while I refused to use it on my early cases when we were dependent on collargol with its dangers, I now use it in most cases for the satisfaction of its confirmatory value, and because I find that the thorium may be used with impunity if used with judgment.

The ureterogram is of great value in deciding whether a small shadow on the unaided X-Ray plate is within the ureter or whether we are dealing with a phlebolith. This point can usually be settled in women by using the wax-tipped and wax-ringed catheter. In using the radiogram method the opaque catheter or the styletted catheter should be photographed in the ureter. Many stones in the ureter are in the broad ligament region as are many phleboliths and for this reason it is safer to use the bifocal method, as a phlebolith in the uterine vein may be superimposed on the renal catheter and with a flat plate we cannot make a certain interpretation.

Of even greater value is the use of these methods to differentiate ureter stricture from supposed stone in the ureter when the unaided X-Ray has shown a shadow in the ureter region. Many surgeons have had the uncomfortable experience of operating on at least one of these cases. The patient complains of symptoms suggesting stone in the ureter, the urine examination confirms this view, and the X-Ray shows a shadow in the ureter region.

Diagnosis from Tuberculosis. Great care must be exercised not to mistake tuberculous disease of the ureter for ordinary stricture. In 1901 I performed resection of the ureter and implantation into the bladder on a case who had much pus in the urine, one negative examination for tubercle bacilli, and an impassable thickening in the lower end of the right ureter. The true diagnosis was revealed a few months later when I was called to operate on the patient for intestinal obstruction, which was found to be due to tuberculosis. The tuberculous kidney was removed later and the patient made a good recovery.

In October, 1915, Dr. Charles Austrian referred a young unmarried woman 22 years of age, who had been having much pain in the left pelvis and left kidney region, and bladder symptoms for about two years. She had had tonsillitis since childhood. She had had two operations, one dilatation and curettage, and one operation for suspension of the uterus and appendectomy. After one successful dilatation of an obstruction low in the left ureter and demonstration of a pyelitis, I was unable on several occasions to again dilate. I was planning to expose the ureter extraperitoneally and do retrograde dilatation when on a final cystoscopy I was impressed with the large amount of edema about the ureter orifice region and made a second search for tubercle bacilli, which resulted in demonstrating them in large numbers. Nephrectomy for tuberculosis resulted in a restoration to health.

Differential Diagnosis. It may be well to close this section on diagnosis by giving a list of various diagnoses these patients have had while their symptoms were chiefly due to ureter stricture. Urinary tract: cystitis, pyelitis, pyelitis of pregnancy and puerperium, pyonephrosis, floating kidney, hydronephrosis, stone in ureter, chronic Bright's disease. Genital tract: pelvic inflammatory disease, ovarian disease. Gastro-intestinal tract: various functional disorders of stomach and intestines, chronic peritonitis, intestinal adhesions, sigmoid adhesions, colitis, chronic pancreatitis, gall-stones, appendicitis. Joint and nerve conditions: lumbosacral and iliosacral joint pains, neuralgia of sacral plexus, sciatica. Mental disorders.

TREATMENT.

The chief end sought in treatment is the relief of symptoms, and in the infection cases a urine freed of infection, and in all cases suitable for dilatation such a thorough opening of the stricture area that there will be no return of symptoms.

There are very few cases in which we cannot at least ameliorate the symptoms, and fortunately we can relieve the symptoms entirely in a large proportion of cases. There are exceedingly few cases of pyelitis which fail to clear up completely of their infection. I believe that time will demonstrate that in many cases we will not get a permanent dilatation of the stricture and complete relief of symptoms until we have eradicated the original focus of infection.

The ideal treatment for stricture of the ureter is by dilatation from the vesical approach. Naturally those whose work is confined to women and those who use the Kelly speculum have a great advantage in treating this disease. Various forms of operative cystoscopes and ureter in-

struments have been devised by Bransford Lewis and others, which makes it quite possible to do considerable effective work from the vesical end in the male.

My work being confined to women, I shall speak only of the methods which I have used in treating stricture, these having been largely developed or suggested by Dr. Howard A. Kelly.

A glance at Figure 1 will show the simple instruments which I use, entirely with the tubular speculum of Kelly. As a rule I use the olive tip catheter of sizes 7, 8 and 9, carrying a wax bulb 8 to 10 centimeters back of the wax-tipped end (b). Not infrequently the olive tip catheter refuses to pass when a round tip (a) or a whistle tip (c) will engage the lumen and go by the stricture. One may use the ordinary whistle tip catheter with the wax bulb or the whistle tip catheter with a gradually increasing diameter, which Garceau devised for the special purpose of making functional tests (c). This Garceau catheter in sizes 11 or 13 gives a fairly good dilatation without adding the wax bulb.

At times these catheters engage the lumen of the stricture area better with the wire stylet left in for stiffening, and at times a slight withdrawal of the stylet will result in success when the catheter has seemed permanently obstructed.

In case of failure to get by with any of these forms of flexible catheter, it is sometimes possible to make the first entrance with the metal searcher (f). By slightly curving the last centimeter of the metal searcher, one can gently rotate the angled handle, thus giving the tip a variety of axes, in one of which it will engage and pass the stricture where the more flexible instruments will meet a pocket or shelf of mucosa and permanently obstruct. Usually after getting through the stricture area with the olive-pointed metal searcher, one can withdraw the searcher and immediately get by with one of the flexible catheters which has previously obstructed; or one can follow the metal searcher with the metal bulb dilator (g), which has a slightly curved olive tip followed by a metal bulb of 3 millimeters diameter, which bulb gives such thorough dilatation that the flexible catheter is quite certain to pass. At later treatments where a still greater dilatation is wished, the metal bulb dilator of 5 millimeters diameter (h) may be used. It is seldom necessary to use this large metal bulb, for one can easily use the flexible catheters with a wax bulb as large as 6 millimeters diameter. In using these very large bulbs it is well to see that the bulb is of perfect spindle shape, having no abrupt shoulder to catch on the stricture, and also to place smaller bulbs immediately in front and behind the larger bulb to give partial dilatation before the large bulb engages (b).

In our earlier work in testing for stone in the ureter we always used beeswax (the cera flava or cera alba of the pharmacopoea) mixed with one-third or one-half sweet-oil, but I found that this softens the wax to such a degree that it partially crushes on meeting a narrow orifice, or later on meeting the stricture; sometimes on withdrawing the catheter, a part or all of the wax is left on the proximal side of the stricture. For this reason I have given up the mixed wax and oil and use only the pure beeswax. This is soft enough to get a good impression from stone, and it is firm enough to hang to the catheter and not crush under any ordinary conditions of obstruction.

At times on failing to get any of the above instruments to engage a stricture, I have succeeded in making the first dilatation by using the whalebone filiform searchers (e). Usually the first two or three searchers catch in the mucosa just as the other instruments have done, but after introducing three, four, or five filiforms, one can by careful manipulation get one of them through the stricture lumen, when by further manipulation the others will follow.

After dilatation with from two to four filiforms, one can withdraw these and pass the renal catheter with the bulb, but it is generally safer to leave one or two of the filiforms as a guide and pass the metal searcher or the flexible catheter alongside the filiforms to engage the stricture lumen before the guides are withdrawn.

Before beginning work with the whalebone filiforms one should have sterile hands or put on a sterile glove for these have to be grasped close to the speculum at a portion of the filiform that later enters the bladder or the ureter.

Precautions in Technique. Experience has taught a few precautions which should be observed in treating stricture. If the history points to the probability of bilateral stricture never investigate both sides at the first examination, and in later treatments do not dilate both sides at one sitting until certain that the strictures are well dilated and that the kidneys will have drainage after the trauma of treatment.

Do not investigate or treat a stricture too frequently. It seems to take about ten days in the average case for the traumatic edema of the early investigation to subside. This is particularly true if the last effort to dilate was a failure, for in such a case there is usually more trauma than in the case which takes the catheter and dilator with the first effort. If the patient is away from home and under the expense of hospital treatment he will likely be restive at the surgeon's apparent inactivity, and it is well to explain that greater haste is likely to defeat

the desired end. For the cases who return to my office or to the dispensary for treatment I prefer to fix the interval at from two to four weeks or longer, according to the response.

In the pyelitis cases in which we are anxious to combine the pelvic lavage we may observe the ten day interval for the first two or three treatments, or until we are quite certain of a good ditatation, then we may lavage twice a week, using a small catheter, Number 5 or 6, and once in ten days or two weeks, using the Number 8 or 9 catheter with the large wax bulb for dilatation.

In any case do not use a large bulb for the first dilatation. A 3 or 3.5 mm. bulb will usually pass without splitting the mouth of the ureter and without too much trauma to the stricture area, although this small bulb may split the stricture and cause some bleeding. It is not uncommon in the pyelitis cases to have a partial closure of the stricture area after the first one or two dilatations with the small bulb; this being especially true if these treatments are at short intervals.

The use of large bulbs measuring 5 to 6 mm. is not without its danger even after the patient has had repeated treatments. Case 35 with only one kidney was ready to be dismissed as well when we undertook to make a final large dilatation. This evidently split her stricture area for she had intermittent suppression and passage of ureter clots and was in a precarious condition for several days until the bleeding stopped.

In two of my cases the use of too large a bulb or perhaps the presence of a too abrupt return shoulder on the wax bulb resulted in great difficulty in extricating the catheter, and on its return the shoulder carried a complete collar of mucous membrane torn from the stricture area. This of course represents an undesirable degree of trauma in the stricture area.

One must use care in the amount of force exerted in pushing the catheter in. If the stylet is still entirely in the catheter the end of the catheter may go through the ureter. This evidently happened in Case 36 and a silver nitrate injection of 1 : 1000 strength was left in the extraperitoneal tissues of the pelvic brim region. This caused much pain of a peritonitis character but no apparent permanent damage. In Case 29 the catheter went through the bladder portion of the ureter, penetrated the bladder mucosa, and curved back into the bladder.

If the stylet has been partially withdrawn there is probably no danger of the end of the catheter penetrating the ureter, but forcible pushing may result in penetration of the catheter wall by the end of the stylet as occurred in a recent case without observable results.

Results of Treatment by Vesical Approach. What can we hope for in the simpler non-operative forms of treatment? In the cases without infection and without much renal disturbance we can look for cure if distant foci of infection have been removed. Such was the result in eight of my first fifty cases. The case numbers, the duration of symptoms, and the pelvic contents before and after treatment are shown in the following table:

Case No.	Duration of Symptoms.	Pelvis Before Treatment	Pelvis After Treatment
15	A few weeks	30 cc.	3 years later—15 cc.
17	5 years	22 cc.	2 years later—9 cc.
21	2 months	15 cc.	5 months later—7½ cc.
22	5 years before passed ureter stone	28 cc.	5 months later—10 cc.
27	2 years	30 cc.	Not seen after 3 treatments and complete relief of symptoms.
28	9 years	15 cc.	3 years later—no further attacks. Pregnant for third time since treatment.
35	18 months	22 cc.	4 months later—10 cc.
40	3 months	40 cc.	Not seen after two treatments.

In certain other cases, even with infection, if the kidney pelvis is not too dilated, we get brilliant results in permanently clearing up the symptoms and the infection through dilatation and lavage. This occurred in six of my cases, two with bilateral stricture and pyelitis.

Case No.	Duration of Symptoms	Pelvis Before Treatment	Pelvis After Treatment
34	11 years	Bilateral and no dilatation	Free of pus and bacteria
41	1 year or less	30 cc. staphylococcus	Free of pus and cocci. Pelvic contents 8 cc. six months later
43	4 months	Bilateral, colon, no dilatation	Free of pus and bacteria
47	Pyelitis one week	11 cc.—colon	Free of pus and bacteria
49	10 months	40 cc.—colon	Free of pus and bacteria. Pelvic contents 30 cc. two months later
45	Pyelitis third month of pregnancy. Four days duration of symptoms	18 cc.—rod bacillus	One dilatation 5 mm. metal bulb—no further symptoms. Examination one year later—urine normal

In other cases with infection and large pelves we may be unable by lavage to rid the patient of infection, probably because of the permanently sacculated pelves, but we may restore them to apparent health by doing away with the ureter obstruction, thereby relieving their pain and their toxic symptoms.

In the following two cases with infection the patients' symptoms were relieved by treatment, but I have been unable to follow them with cystoscopy to learn of the final kidney condition.

Case 14 with attacks of pain in the kidney for two years, enlarged inflamed tonsils, and arthritis, had a stricture about 3 cm. from the bladder, and a kidney pelvis of 12 cc. capacity with a staphylococcus infection. After a few dispensary treatments she was lost track of.

Case 23 had a stone in the bladder with symptoms referable only to this. The X-Ray picture revealed another small shadow in the left ureter region. On investigation this shadow was found to be outside the ureter, but the ureter had a stricture in the bladder portion and another about 4 cm. from the bladder. The kidney pelvis held 21 cc. and was infected with colon bacillus. After a few treatments the strictures were well dilated and the pelvis reduced to 14 cc. The patient went to her home in North Carolina before the infection was cleared and a recent letter four years after her treatment, states that she is perfectly well.

In another group of three cases each with bilateral, infected pyelitis, the method has not had a fair trial, because of a failure of the patients to persist with treatments after securing enough dilatation to free them from the severe attacks of pyelitis.

Treatment by Operation. If all the methods of vesical approach fail, we must consider the operative relief. No form of operation will be undertaken until as complete investigation as possible has been made of both sides. Stricture of the ureter being bilateral in 30 per cent. of the cases, we cannot afford to take anything for granted in dealing with a case where symptoms may be confined to one side.

If investigation shows stricture of but one ureter, associated with a kidney of little or no functional value, conservatism usually calls for extirpation of the injured or dead kidney. This was done in six of my first fifty cases with entirely satisfactory results.

If the stricture is high at the junction of the kidney pelvis with the ureter, we may follow Fenger in doing some form of pyelo-ureteroplasty. Actual stricture at this point is extremely rare, and the valve-like obstruction formed by floating kidney can usually be overcome by mere high fixation of the kidney as I have done in a number of cases with excellent results.

If careful examination at the time of operation leads one to suspect an organic narrowing at the pyelo-ureteral junction, a pyelotomy and careful dilatation may be done in addition to the kidney fixation, or if the pelvis is very large, a partial pyelectomy may be done, being careful to dilate if the orifice into the ureter is at all narrowed.

Case 44 with symptoms of four years duration had a stricture in the left broad ligament region and a kidney content of 360 cc. of clear urine, the functional test being good and equal on both sides. I resected her kidney pelvis and later examination showed the restored pelvis to hold 7.5 cc.

If the stricture is lower and about the lumbar or pelvis brim region, it has been recommended to sever above the stricture and implant into the colon or in the loin region.

If the stricture is low and near the bladder, as a vast majority of these strictures are, it has been the custom to implant the severed healthy end into the colon or bladder. I have never made a colon implantation in these cases, but the results of Coffey's work on dogs[16] and of Charles Mayo's work on the human, using Coffey's method, would indicate that there is a field for this method. Some of these cases have a degree of dilatation of the ureter, which would make the operation easier than on the normal ureter, and some of them have such a wide dilatation of the ureter that the operation would be more difficult and the lowered resistance of the kidney would invite infection.

I have done bladder implantation in two of these fifty stricture cases with indifferent or questionable results in both. I say "questionable results" because in neither case could I later enter the ureter with a catheter from below. Both cases have been in good health since the implantation, but I suspect in both of these cases there may have formed stricture at the site of the implantation with gradual destruction of the kidney.

Retrograde dilatation. I wish to emphasize a method for handling these cases by operation which I have not seen mentioned in the literature but which I am sure must have been done by some surgeons and which has probably been described before, viz., the treatment by retrograde dilatation. Certainly every surgeon must follow his ureter stone extractions by dilatation of the usual area of infiltration about the stone.

The ureter is exposed by an extraperitoneal incision, incision is made into its dilated portion above the site of stricture, and increasing sizes of the French gum elastic bougies (Fig. i-d) or metal sounds are passed until the stricture is dilated to a diameter of from 5 to 7 mm. The ureter incision is then closed with catgut. A wick drain is usually left in the extraperitoneal incision for forty-eight hours to take care of

possible contamination by the escaped urine at the time of operation, or of post-operative leakage and the excessive serum secretion following the extraperitoneal operation.

If the dilatation has not been entirely satisfactory or if there has been much trauma to the ureter, I leave it open or close it carelessly with catgut to favor urine drainage in case of temporary swelling shut of the traumatized stricture area. In such cases two or three small wicks are dropped to a point near the ureter incision and left some days or until there is certainly no urine leakage.

A McBurney incision is suitable for most of these cases, but a semilunar line incision is more useful, for it can be enlarged up or down to suit the exigencies of the case, and through a moderately long semilunar line incision one can easily palpate from kidney pelvis to bladder. With care one can preserve the intercostal vessels and nerves crossing this incision to the rectus muscle simply by deflecting them and working between them.

I have treated eight cases by this retrograde dilatation, five cases in which it was impossible to dilate from below, two cases in which stricture of the ureter was found when stone was being looked for, and in one case in which ureter stricture had been successfully treated from the vesical approach one year previously, but in which the stricture again swelled shut sufficiently to cause kidney symptoms in the course of an attack of acute gonorrheal salpingitis.

The results in these eight cases treated by retrograde dilatation have been perfect in six, so far as measured by relief of symptoms and ability to easily catheterize later from below. In one case, my first one, in which I was looking for stone and failed to find it but found the ureter dilated to one centimeter diameter from the bladder to the dilated kidney pelvis, I found a dense stricture in the bladder area and dilated it with the uterine sound only, which probably made a diameter of only three millimeters. I heard one or two years later that this patient developed symptoms again and had a stone removed from the kidney. I have questioned the accuracy of this report, especially as the patient had the kidney removed at a third operation. It is possible that I overlooked a floating stone temporarily lodged in a kidney calyx, but I think it more likely that the symptoms returned and persisted because the stricture was not sufficiently opened. My X-Ray had shown a questionable shadow in the kidney region.

My second case with a questionable result after retrograde dilatation was one in which the stricture of the left ureter was a diffuse one, reaching from the bladder to five or six centimeters above. She had stricture of the right ureter also, but had no symptoms on this side. A

few weeks after retrograde dilatation she again showed signs of kidney obstruction and I failed to catheterize from below. I attempted to make a uretero-vesical implantation above the site of stricture, but failed to find the ureter in the midst of the scar tissue following the previous operation.

The patient got along fairly well and when she was three months pregnant, some three or four years later, her physician at my suggestion tried to catheterize her ureters, but was unable to enter either kidney. One would suppose that with the increased circulation and pliability of the tissues characteristic of the pregnant state, this would be an ideal opportunity for dilating strictures of particular density.

The cases least suited for retrograde dilatation are those in which previous testing of the capacity of the kidney pelvis and ureter, and pyelography have shown an absence of marked enlargement of the lumen above the site of stricture. In these cases the ureter is found too small above the stricture to admit large dilators, and if it is at all possible to get by from the vesical approach, one should be satisfied to do as well as possible by this route although it may require a long, tedious course of treatment.

I cannot speak with authority concerning ureter stricture work in the male. Because of the restriction in the use of instruments, it is probable that retrograde dilatation will be resorted to much more frequently in the male than in the female. Dr. Bransford Lewis has devised a clever flexible metal dilator which will undoubtedly be of use in some cases. In many cases this instrument will be found to be too blunt to get by the stricture area. Those who use male instruments that take an eight or nine renal catheter will be able to relieve many cases merely by passing the catheter, particularly if the dilatation can be repeated every few weeks or months. In the past many cases of hydronephrosis and of pyelitis due to stricture have been improved or cured of their symptoms without discovery of the stricture because the passage of a renal catheter gives sufficient dilatation in some cases to result in good drainage.

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A GYNECOLOGICAL DIAGNOSIS.

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In no branch of medicine today do we have a more constant and emphatic reminder of a certain truth than in the diagnosis of gynecological conditions. That truth is this: no man diagnoseth unto himself. We have come to the point where we cannot merely look at a patient, listen to her tale, and tell what is the matter with her. Also when we have made our diagnosis—our individual diagnosis—it must be checked up by somebody else either for or against us. Instruments of precision have done a great deal; they have enabled us to say that this is a fact and that is not, and this is true and that is untrue. But instruments of precision can never take the place of coöperation between the individual physicians who are associated on a case. A physician who has the responsibility of such diagnosis must think for himself as being at the top of a group of men working for the truth, but he cannot possibly mean to do all the work himself. In these days of improved facilities and more scientific accuracy, it becomes us to inquire into the subject of gynecological diagnosis, especially to find just where each of us stands in relation to the patient. There are some five or six points I would like to bring out.

In the first place, we must consider the *whole woman* and not a part of her. It may be the woman and not the womb that is out of fix. Many years ago Professor Goodell called attention to this question and proved, in many instances, that so-called pelvic disease was outside of the pelvis. So we will assume for our first position that a man who makes a gynecological diagnosis must be very capable of making a general diagnosis. How often do we hear men talk about reflex influences! We must understand that reflex influences can work both ways. If the general organism can be affected by pelvic reflexes, then the pelvis can sometimes be affected by reflexes from the general organism. Many times, when a woman comes in for a gynecological diagnosis and says there is something the matter with the womb, we examine the pelvis and find there is something the matter with the womb, perhaps; and then we assume that is the entire cause or even the actual cause of the whole trouble.

Now, the second point is the accuracy and intelligence with which the *history* is taken. All medical histories are composed of two things: the anamnesis, or patient's side of it, and, second, the things which are brought out by the physician in his observation of the case. So that we may formulate this plan: let the patient tell her own story first, and then ask her questions. I think I need to emphasize this because it is a temptation to put the cart before the horse in this matter, and some of us have even been ambitious enough to try to stop the patient from telling her story. Sometimes they can hardly run over the ground in two or three hours. But I am satisfied that we lose great pathological entities—perhaps the pith of the whole thing—if we leave off this. Now, the questions must never be leading questions; just as in a court of law, we have no right to break the rules of procedure. If we do break the rules we are going to make mistakes. When you ask the patients if they have pain in certain places, why, of course, they have pain in certain places; but the point is to assume they do not have pain in those places, and we usually get the truth.

The history is an important thing. I do not by that mean to say that we must take the story of a patient's life always from birth on, nor do I mean that we must inquire the color of her grandmother's eyes, or what she ate for dinner last Thursday night, as a great many routine histories bring out. The truth of the matter, it seems to me, is that the history should be taken more often by the physician himself and not left always to a younger member of the staff, or an assistant, who tries to see how much he can get in, without regard to the relative importance of the evidence. I emphasize this point because we find

a great many young men coming out of the hospitals who, if you give them a patient whose history they must take, have a certain formula in the back of their heads and make the patient fit that formula. Every patient is an individual problem, and the best history sheet in the world is a blank piece of paper and a full head of knowledge rather than rules and lines and spaces to be filled out. The importance of the history may be emphasized by the gynecological findings. If the history is accurate it may be of very much more importance than the physical examination. This is true of tubal pregnancy in particular.

Third. When we approach a gynecological diagnosis our problem is to *find out what is there,* not to invent something that may not be there. We may suspect a condition that is present, but we are not to look for anything. I am going to stress that mental attiuude because I myself have made mistakes by not heeding it. When I took a history and approached an examination, I would make up my mind about certain things it could be and then sometimes before examination, I would say, "Oh, this is absolutely so and so," and then at the examination I found that condition present, and I would be perfectly satisfied without looking for anything else. You know there are so many things to be considered in a woman's pelvis that may be out of whack that simply finding one lesion does not mean a diagnosis, because lesions are usually multiple. One lesion may lead to another until we have a whole chain of events, and a large number of pathological conditions, which may be, if you please, all a part of one supreme lesion, in itself causing the trouble. So what we are after is the truth, and not some preconceived opinion that we ourselves have trumped up.

Fourth. The *age of the patient* should not be thought of alone in regard to the number of years she has lived. You know the saying that a woman is as old as she looks, and a man is as old as he feels. That may be true. We also know that age is relative to both sexes and that the period of life at which a woman applies for medical advice is one of the most important conditions that could possibly be considered. There are five physiological periods in the life of a woman—infancy, puberty, maternity, menopause, and senility. The first of these periods, infancy, runs from birth up to the age of twelve and need not concern us. It makes a great deal of difference in which one of the five periods a patient comes to you. If a patient comes to you during the age of puberty, which runs from twelve or fourteen years up to twenty, you would recognize the fact that the diseases of this period would be more likely psychoses, various other nervous conditions, errors of development and deformities. And if a patient came to you

in the period of maternity, sometimes called maturity, which runs from twenty to forty-five, you would feel that you had to do largely with conditions produced by childbirth and infections, both venereal and puerperal. Then, further on, at the age of the menopause, from forty-five to fifty, you would expect to find malignant diseases and certain nervous phenomena associated with that period, as with the period of puberty. Finally, in the case of senility you would expect to find a rather silent period, with certain infections due to old age, like senile vaginitis, and some other possible lingering or belated malignant processes. So I think if we keep these periods in mind, we will be less apt to go astray; and we make a mistake if we diagnose the case of a woman without considering her age at all.

Fifth. *The examination.* In a gynecological case we must proceed in due order. I think a most careless habit for a physician to get into is to examine the patient for a supposed local condition which he suspects without going over every phase of the case beforehand. The examination consists of three parts, as you know—the abdominal examination, the examination of the external generative organs, and the examination of the internal pelvic organs. The examination of the abdomen should be made first, not only for possible pelvic conditions there to be found, but with reference to the intestines, the kidneys, the appendix, and the gall-bladder; and for any abnormalities of these or other abdominal organs. It is particularly necessary that the gynecologist be versed in abdominal palpation, because this one branch of physical diagnosis is, above all, most important. And then the examination of the external organs is to be made with the expectation that a good deal of information will be gained before the internal organs are examined. The reason for this is obvious. Proceeding further, the examination of the internal pelvic organs is made first, by a digital exploration of the vagina and cervix and then a bimanual examination, including all organs within reach. I want to call attention to one startling fact: that is, that we are not taking advantage of practicing the bimanual examination as we ought to. The bimanual examination is almost the whole thing in the diagnosis of pelvic lesions. How often I have been in consultation with very good men in general practice and asked, "Have you made a pelvic examination, Doctor?" only to be told, "No, I have not; I did not bring my speculum with me." Now, the speculum is a very unnecessary article in an examination except to check up certain points that might be overlooked in a bimanual examination. One may ask, "How can I tell how the cervix looks without seeing it?" It is much more important to determine how the

cervix feels how it looks. There is no place in medical practice where the eye on the end of the finger is so necessary as it is here. A bimanual examination can be made with great ease and accuracy only by continuous practice over and over and over again. It should be done by practitioners whenever opportunity offers in order to acquaint themselves with normal conditions and also to be able to do it with ease. Of course, many errors are made both of omission and commission. If we feel that no mistake can be made in using the bimanual examination without further investigation, we delude ourselves. Further, we may know that there is a mass, but it is not always possible to say what that mass is. Let us also appreciate the fact that the bimanual examination has shown up many pelvic infections that had been treated unsuccessfully for years and years by tampons and douches simply because the physician had not and could not make a thorough bimanual examination. I think Joseph Price was the first man in America to call attention to this weakness in the average gynecologist of his day. The patient was placed daily on the examining table, a glycerin tampon introduced into the vagina, and all the time a smouldering mass of suppuration was going on in the pelvis. "It was," said Price, "like putting a postage stamp on a sewer pipe."

Sixth, and finally. There are *three main sources* of gynecological disease: infection, traumatism and deformity. Leaving out certain growths which occur elsewhere in the body, we can say that practically all gynecological disease is derived from one or all of these sources: infection from venereal disease or childbirth; traumatism, largely from childbirth; and deformity, which may be either congenital or acquired. If we keep these three factors in our minds in examining patients we will be able, I think, with the aid of a knowledge of the periods which a woman must go through in life, to center our minds definitely on the points at issue, and thus to make our diagnoses promptly and accurately.

DISCUSSION.

Dr. A. T. Pritchard, Asheville: I enjoyed Dr. Royster's paper very much. I don't know that there is anything that I can add. I should like, however, to emphasize one or two points. The general condition of the patient should be thoroughly gone into. Frequently ladies are operated on, and later it is found that they still complain of the same old trouble; and that the operation was done for some condition that had no real bearing on the principal trouble complained of.

We should be very careful and not call conditions hysteria; certainly not until we have very carefully gone over the entire field. I think that when a lady has various aches and pains there is bound to be some cause for the disturbance, and careful search will usually reveal the true condition; either in the pelvis or in some other part of the body. Adhesions of the pelvic structures, especially to the sigmoid, give rise to all sorts of vague symptoms.

Another point that I am very much impressed with is the fact that the end of the finger is of so much more value in making a diagnosis of conditions of cervix than the speculum. This is especially true of lacerations. An examination under anesthesia should always be performed when there is doubt as to exact condition in the pelvis. Many ladies who have normal pelvic structures are very sensitive to pressure over the ovaries, and might give to the inexperienced the impression of having tubal and ovarian trouble, when there is really nothing wrong with these structures. Always just before the operation, while patient is under the anesthetic, your diagnosis should be checked up by a bimanual examination of the pelvic organs.

Dr. Oren Moore, Charlotte: I want to take part in this discussion to say that I sometimes think the errors which the general practitioner falls into in making a gynecological examination and diagnosis are caused by the text-books. We are led into a sort of routine and are taught to regard certain pelvic conditions as possessing definite symptoms. Having been taught that certain symptoms are characteristic of a given disease, we make our examination expecting to find that disease. I think the idea, as brought out by Dr. Royster, is a very forcible one, and a very correct one. I also agree very thoroughly with what he has to say about all these cases being studied with regard to general condition, before being operated for a local one.

In my experience in uterine, vaginal, and traumatic cases, I find that the patient is worse after a more or less useless operative procedure than before. I believe that by failure to thoroughly understand the gynecological cases, more harm has been done by surgery than has been done in any other branch.

Dr. H. A. Royster: I want to thank Dr. Pritchard very heartily for bringing out the importance of an examination with anesthesia. In cases of doubt I anesthetize the patient, and in every case I re-examine the patient under anesthesia before operation.

Also, I cannot but heartily commend Dr. Moore's idea in regard to the text-books. Some day I am going to write a text-book on text-books, and the first thing I shall call attention to will be the fact that

in any book of this sort, which is generally about 700 pages long, by the time the last page is written, the first page is out of date; and the second point would be the fact that their pictures do not illustrate, but rather obfuscate. When a man depends upon such pictures, he will be likely to go very far wrong. I remember one picture of a woman lying in bed, colored lithograph showing emaciation and cachexia, her left breast a mass of ulcerating rottenness and enlarged glands in the axilla, and underneath was written "Cancer of the breast." It was *not* a cancer of the breast, but a cancer of the human body. But these things have gone the rounds with the object of teaching us diagnosis. So in pelvic diseases, they show us pictures of instruments, many of which we never use. Dr. Weaver asks about movable kidney as a cause of disease in women. Opinions differ. Personally, I do not operate on more than one or two cases of movable kidney in each year, and I see about forty or fifty a year. My feeling is that if I myself had a movable kidney I would prefer to wear a corset and drink buttermilk rather than have it anchored. You know the difficulty in a movable kidney case particularly is to prove the connection of the physical findings with the symptoms. The difficulty is to link them up, and always I ask in consultation somebody with more keen judgment and more satisfactory diagnostic ability than myself to determine whether, on one side, the symptoms depend upon the lesions found or whether the lesions depend on the symptoms. Many floating kidneys are discovered accidentally. I notice that Clark and others have recently gone back to considering floating kidney as a real cause of disease and that now they are advocating theories they turned down some years ago. I suppose we shall continue to do that throughout time—change our minds; and we would be very poor human beings if we did not change our minds sometimes.

PRE-CANCEROUS LESIONS OF THE UTERUS AND VAGINA.

Dr. C. S. Lawrence, Winston-Salem, N. C.

In spite of the fact that the cancer problem has received special attention during the past decade the disease appears to be on the increase. The death rate in 1914[1] being 79.4 per one hundred thousand of population, the highest on record since the establishment of the registration area in 1880; of this number 12.4 per one hundred thousand

population the disease was of the female genital organs. It has been demonstrated beyond doubt that cancer is neither hereditary nor contagious.[2] So we may dismiss this subject as an etiological factor from our minds, which is quite a relief to some of us whose near relatives have died of the disease. In cancer, like all body ailments, the cause must, or should, be determined before intelligent treatment can be instituted. In the study of the etiology of cancer (carcinoma) it appears that the most potent etiological factor is an irritant to the cellular structures at a point where the disease later develops; this irritant stimulates the production of cells from the germ cells until an excess of cells is produced and there is no longer room for the excess of cells in their normal location and, as a result of over-production, we have migration into the surrounding stroma.

MacCarty[3] has described and demonstrated under the microscope the process of evolution of the cancer cell from the germinative cell in the *stratum germinativum* of the gland to the differentiated, and then to the migratory cell or true cancer. This he has called primary, secondary, and tertiary cytoplasia; the first two being benign, and the third malignant. He has thus been of great assistance to the surgeon and patient in that an intelligent plan of treatment has been established, viz., primary cytoplasia, excision; secondary cytoplasia, wide excision; tertiary cytoplasia, radical removal. To carry out this method of operating, frozen sections must be made at the time of operating, the nature of the tissue studied while the patient is on the table; in this way the patient gets the benefit of the examination of her own tissues and her operation performed in a scientific way.

If cancer is to be cured the cell-producing tissue must be removed while the cancer cells are yet confined to those tissues, that is, before metastasis has taken place; and the only way this can be determined is by the study of tissues microscopically. The frozen section technique is simple and rapid. In the hands of an experienced pathologist tissues may be cut, stained, and examined in from five to ten minutes.

Cancer does not always produce death by metastasis in the body[4] as has been shown by autopsy in a series of cases; in 19.7 per cent of the cases death was caused by the local disease, no metastasis being found. These findings go to show that metastasis is not an early process in cancer, that the cancer cells remain local long after they migrate into the surrounding connective tissues; radical removal in reasonably early cases will cure.

What do I mean by reasonably early cases? In discussing this phase of my paper I shall confine myself to my subject: Pre-cancerous lesions of the uterus and vagina.

1. I shall mention laceration of the cervix uteri and vagina, because in my mind this is the most potent source of irritation to the delicate epithelial cells of these organs. Especially would I call attention to the lacerated cervix with eversion of the cervical mucosa. The cells lining the glands are being constantly destroyed and the germinative cells overworked in supplying the loss; the acini of the glands are filled until they can hold no more, when migration into the surrounding connective tissue takes place, and that is true cancer.

2. Benign neoplasms of the uterus, such as submucous and intramural myomata, are irritants to the uterine mucosa. Bland Sutton[5] in going over specimens at the Royal College of Surgeons, London, found 4 per cent. of the uterine myomata to be cancerous. In my experience I have had one case of a large myoma of the uterus with carcinoma engrafted in the uterine mucosa. Uterine polyps, stem pessaries, and the irritant chemicals all act in the same way to produce dangerous irritation, which predispose to cancer.

3. Inclusion cysts of the cervix and vagina, produced by epithelial cells, becoming sequestrated and by sealing over the glands of the cervix by scar tissue is fertile soil for the growth of cancer cells, and in reality should be considered cancer per se, for they are misplaced epithelial cells.

4. Operation and instrumentation. One should be very cautious in operating upon the uterus or vagina, for he may produce the very thing that we are trying to prevent, in that epithelial stuctures may be misplaced or placed in a position of dangerous irritation.

The duty of the gynocologist is first, to prevent disease, and second, to cure or palliate the unfortunate ones who have been allowed to become the victims of disease. In my experience I recall several hopeless cancer cases of the uterus who after being made aware of their condition (and I am always frank with these cases) have told me that "Doctor So and So told me ten years ago (or five years ago) that if I did not have my cervix and perineum repaired I would become a victim of cancer, and I did not accept his advice." So you see the doctor is not always to blame. On the other hand I have seen cases that had been told their bleeding was simply due to the change of life and all would be well when that period in life had passed. Such periods always end in death. I have been called in consultation on cases that had been

bleeding a year and with the pelvis full of cancer, the body cachetic, and have the doctor tell me that he thought the case had become a case for the surgeon.

There are a few simple signs that do not require expert laboratory men or even men of special skill in diagnosis to recognize as danger signals and direct the patient to safety. They are excessive leucorrhea, especially when accompanied with offensive odor and streaked with blood, excessive bleeding or bleeding irregularly; women past the menopause months or years who suddenly without warning have hemorrhage from the vagina, means one thing—cancer.[6]

The treatment of precancerous lesions consists in removal of all sources of irritation such as new growths, the repair of lacerations of the cervix and vagina, discouraging the use of mechanical support such as pessaries of all kinds, the use of irritating chemicals, the indiscriminate use of the currette, dilators and volsella. There is some question as to the proper time to repair lacerations, at childbirth, or later. It appears to me that there is no better time to repair lacerations than at the time of childbirth, for if the labor has been conducted in an aseptic manner the tissues will repair better then than at any other time. In late cases the tissues should be examined and operation performed according to the plan worked out by MacCarty and mentioned in the first part of this paper; viz.: Primary cytoplasia, trachelorraphy; secondary cytoplasia, amputation of the cervix; tertiary cytoplasia, radical hysterectomy.

Neoplasms should be removed. Radium and X-Ray are being used for this purpose and good results reported. I am unable to discuss the merits of these agents, but I do know that the knife will remove neoplasms, and, as Deaver says, render the abdominal cavity transparent. I don't believe that every little fibroid nodule accidentally found in the female pelvis should call for surgical intervention, but I do believe that all submucous or intra-mural growths producing symptoms in the form of leucorrhea streaked with blood or hemorrhage should be removed as well as uterine polyps.

Carcinoma has been with us always, and will remain with us as long as the body contains epithelial cells; and as the only cause for carcinoma that we know of is an irritant to epithelial cells which brings about an overproduction of cells through the germinal or basal lining of epithelial structures, it remains for us in order to prevent cancer first to remove the cause. This can only be done through a system of

education. First, the doctor should narrow himself down to finer things, stop looking for cancer, look for irritation to the epithelial structures and endeavor to remove same.

Dr. Taussig,[7] chairman of the Missouri State Cancer Committee, through a system of education in St. Louis, was able to increase the operability of cancer of the cervix from 11.1 per cent. July, 1905, to 40.9 per cent. December, 1916. We see at once the wonderful results of the thoroughly conducted campaign of education against a dread disease which seems to be on the increase in the civilized world.

RFFERENCES.

[1]Bureau of the Census report Mortality from Cancer and Other Malignant Tumors, 1914.

[2]Mr. Arthur Hunter, President of the Actuarial Society of America, address Association Life Ins. Pres., New York, December 15, 1916.

[3]McCarty-Mayo Clinic Papers, 1914-15.

[4]Murphy, J. B., Clinics, 1916, Vol. V.

[5]Murphy Clinics, 1916.

[6]*Ibid.*

[7]Taussig, Chairman Missouri State Cancer Committee. Report to American Soc. Control of Cancer, December 20, 1916.

DISCUSSION.

Dr. L. N. Glenn, Gastonia: I think the best sense of this particular paper is that we are to stop looking for cancer and to look for this irritation with a view to the elimination of the conditions; and I think that if that were done we would not see the text-book picture that Dr. Royster spoke of as representing cancer of the breast when it was not a cancer of the breast.

In speaking of pre-cancerous lesions of the uterus, this term I take to cover the whole category of symptoms and conditions that an unwell woman presents at any time of life after maturity. I don't think there is any one place that we might call the dividing line between the benignant and malignant type. The benign conditions that originate in these pre-cancerous conditions slowly but surely trend into the malignant type, malignancy particularly always following the benignant type where there is a cancer germ or a distinct cancerous condition. They are not perceptible to us, but there is no doubt that continual irritation or aggravation of the benign conditions will be followed by malignant conditions. Instead of looking for cancer or malignancy of any type, the general practitioner can much better discharge his duty to his patient by considering sexual hygiene and malformations or irri-

tations of any kind, traumatism of any kind, and by treating those conditions by relieving or remedying or removing them rather than to drug the patient until malignancy has assigned the disease to a fatal culmination. In doubtful cases, I think it the duty of the gynecologist and the surgeon always to treat them as malignant: complete removal if early enough, being the ideal solution. Nowadays, with electrical facilities, a quick diagnosis can be made, as Dr. Lawrence has mentioned, in from 5 to 10 minutes, and in expert hands in from 2 to 3 minutes. These conditions may very frequently and very accurately be determined while the patient is still on the table. Before admitting radical interference with these malignant uterine conditions, I think it well not only to examine the pelvis but examine the patient all over. Examine microscopically and systematically and from all angles. Seeing the cervix with your finger is far better than seeing it with your eyes. The eye tells you very little as contrasted with the finger; and an examination, as Dr. Royster has well said, according to the bimanual method, and as some one has added, using an anesthetic, is certainly an ideal procedure, the anesthesia at that time giving you thorough relaxation, and eliminating the mental interference exhibited by the patient, as only an anesthetic can, and this plan of procedure is certainly the ideal. This whole subject, to my mind, is of greater importance in the hands of the general practitioner than in the hands of the surgeon. The surgeon, as a rule, sees these cases after their fatality has been established, after their hope is, so to speak, past and gone. The general practitioner, on the other hand, sees the patient during the benign stage, and the general practitioner, to my mind, should be the man who saves the lives of these patients rather than the surgeon. The general practitioner is the man who should analyze the patient, whose two hands should make the diagnosis, and who should guide and guard his patient against the eventuality that the surgeon is supposed to take care of after the patient has reached a hopeless condition. A careful examination by the general practitioner should be made not only once, but periodically or systematically. Any woman who has pelvic distress or discomfort of any kind, regardless of her age or social or civil condition in life, should have a thorough and careful examination made, and if these conditions were discovered, as a result of these examinations, surgery would do far more for these patients than at present. A surgeon nowadays meets them at the time when so much is expected and when so little can be done; and it is no reflection on surgery to say that so little can be done. It is a reflection, if any, on the treatment

of the primal stage of this disease. It is the general practitioner's experience that with early examination on the part of that practitioner, with an intelligent interpretation of the conditions as found, and with proper teaching and training of the patient by these physicians, the vast majority of these conditions would remain pre-cancerous conditions, would remain benignant conditions. The patients would not have to submit themselves to surgery and their lot would be far better.

UTERINE SYPHILIS.

Dr. Oren Moore, Charlotte, N. C.

The subject of uterine syphilis has received scant scientific attention in the past, as compared to syphilis in other organs or as a gynecological entity, nor has the present day with its superior laboratory methods, such as the Wassermann and luetin reactions and improved staining methods, recorded many noteworthy contributions to the literature. Indeed, so meager is the recorded knowledge that one is amazed at this "unwritten chapter in gynecology," as Carter has termed it, has so long stood blank, while syphilographers and gynecologists have written so much on every other conceivable subject.

In this paper no claim will be made toward throwing much additional light upon a, as yet, hazy subject, but an effort will be made to review the existing literature and clinical data with a view of:

1. Establishing a relative frequency of occurrence.
2. Pointing out what progress has been made in establishing a definite pathology.
3. Suggesting a probable symptomatology.

As to frequency of occurrence: We must admit that from its location the uterus is frequently exposed to syphilitic infection, and if the percentage of reported cases does not run as high as the law of averages would demand we must presuppose either, that the uterus possesses a definite immunity to the spirocheta pallida, or that our diagnostic methods are at fault. With the increase of our knowledge of syphilitic infection we have found that it shows no respect for any given tissue; we would therefore not expect it to discriminate in favor of the uterus, nor does clinical data or histologic research bear out any such theory. On the contrary, the scanty literature on uterine syphilis is filled with many authentic reported cases. As an example, Gellhorn and Erenfest

state: Cervical chancre is the most common form of luetic infection of the internal genitals. They also report secondary lesions, macules, papules and ulcers.

Neisser also reports many cases, some of more massive type than those seen by Gellhorn. One case of Neisser's will bear quoting: "A woman presenting a thickened soft and non-ulcerated cervix, complained of bleeding and abdominal pain. A microscopic section was examined and pronouced round cell sarcoma. While preparing for total uterine extirpation a rash developed, the diagnosis was changed to lues, and the patient was cured by mercury." Hoffman has reported a massive gummatous tumor in the endometrium. Gaffenburg has reported finding enormous tangled masses of spirochetae in the fetal uterus in congenital syphilitics. Schleman has reported finding the spirochetae in a fair percentage of placentas and cords of syphilitic babies; it would not therefore be unreasonable to expect that the contiguous uterine tissue would share in the infection.

Obstetricians have for years contended that uterine syphilis was directly responsible for the spontaneous rupture of the pregnant uteri and the so-called fibrosis uteri. The writer has seen several cases of cervical chancre and at least one case of cervical gumma, which was at first thought to be carcinoma, and doubtless many others in this audience have had this same experience. It might be well to remark that the reason why more cervical chancres are not diagnosed is because they exhibit no noteworthy symptoms; the patient is consequently unaware of their presence, and until the secondary lesions appear suspects nothing wrong. This will explain the vast number of syphilitic women in whose history no initial lesion is ever elicited. Also Neisser's report will explain the many so-called spontaneous and medical cures of uterine carcinoma.

Now as to the exact pathology of this disease: Here, I admit, is where the detailed knowledge runs short. Many reported cases of uterine syphilis have been made upon the clinical symptoms alone, and are therefore of doubtful authenticity. One investigator collected fourteen cases of uterine syphilis and reported them as such, but it developed that his claim for specific infection lay in the fact that they all suffered with metrorrhagia, which responded to mercury treatment. His collection will therefore have to be thrown out since it is not backed by either microscopic or blood findings; and so it runs in the majority of reported cases. Other observers, however, notably Laffront, Norris, Prentiss, and Whitehouse, have reported more definite and conclusive evidence. They describe what they believe to be true uterine syphilis be-

cause their cases showed changes in blood vessels similar to syphilitic lesions in other organs, viz., endarteritis, pariarteritis, and round cell infiltration. They also describe chronic myometrial inflammation with softening and friability of the uterine wall.

It would seem necessary to first demonstrate the spirochetae in the tissues or discharges and then study the accompaning histologic structure changes, and thus establish a definite syphilitic pathology. In an effort to do this all observers have examined sections from extirpated uteri, curetted scrapings and menstrual blood in suspected cases. So far, their results have not been flatteringly successful. My own attempts along this line have been dismal failures. I have secured menstrual blood with great care, from cases in which the clinical evidence appeared above dispute, only to be disappointed by the laboratory findings. It might be well to state that the experience of others will not lead us to expect much from curetted scrapings, since few, if any, writers, with the exception of Carter, contend that the endometrium is often involved. As to the sections made from uteri after hysterectomy, I might say that such material is infrequently obtained, since very few uteri are extirpated for bleeding alone, but rather because of more massive pathology such as tumor masses, inflammatory changes, etc. Also it is extremely likely that the spirochetae are present in very few numbers and any given section might easily prove barren; also faulty staining methods may account for a fair percentage of errors. Müeller has reported a carefully worked out case, that of a young woman who was suspected of infecting men, but in whom no lesion could be demonstrated; however, her menstrual discharges were found to contain spirochetae in abundance. Norris says: "There would seem no reason to doubt that with increasing facilities for demonstrating the spirochetae, coupled with the fact that curettage is an often justifiable procedure in uterine bleeding of obscure origin, a series of cases could not be worked out on which to establish a definite basis of uterine pathology. This would go far towards determining whether or not histologic structure changes are enough data to warrant a diagnosis, or whether we should depend upon the demonstration of a specific organism."

I recognize that all the foregoing is principally of laboratory interest, and what the average doctor desires is some definite symptomatology upon which he may base his diagnosis of at least suspected cases, and thus safeguard both his adult patients and their offspring. If I might suggest an opinion upon the probable symptomatology I should say that I am sometimes tempted to make a diagnosis on purely clinical grounds and related facts. For instance, a recent case serves to illustrate what may be called a typical example, as I understand it:

A young woman who was living with a man as his mistress developed a persistent and severe metrorrhagia which responded to none of the usual medications. After two weeks treatment a curettage was advised and accepted. At this time the pelvic findings were absolutely negative except for large and rather soft uterus. The operation served to check the discharge for only a few days. Again for a period of two weeks medication was tried, but a second curettage had to be resorted to. Again the pelvic findings were negative, and again the discharge was absent for only a few days. About this time it was learned that her paramour had some months before been treated for frank chancre. A Wassermann was done on the young woman and found positive. Antisyphilitic treatment was instituted, the metrorrhagia disappeared permanently, and immediately and there was a marked increase in body weight and improvement in health. This case would seem to lie in the class of frank uterine syphilis, since the clinical evidence was checked up by both the blood and therapeutic tests. There are, however, many other phases of uterine involvement which are not so clearcut, but are certainly syphilitic, such as so-called uterine fibrosis, membranous dysmenorrhea, stubborn endometritis, hematometra, and obscure cervical ulcers and new growth. It would thus appear that the outstanding clinical symptom is persistent uterine bleeding, a boggy and infiltrated uterus usually accompanying this.

I should like to accentuate the importance of suspecting and testing by Wassermann reaction all cases of women with persistent bleeding in which there is no obvious lesion to account for; all cases of so-called uterine and cervical cancer in very young women; all cases of repeated abortion, and all cases of atypical cervical conditions. Such a systematic procedure will do much toward protecting both the patient and the physician and will provide many cures which would have otherwise been uneffected.

I would sum up by saying that uterine syphilis does occur with a fair degree of frequency, that a certain histologic change, viz., end- and periarteritis, fibrosis, and infiltration is reasonable grounds upon which to make a laboratory diagnosis, and that persistent hemorrhage of obscure origin coupled with a positive Wassermann or luetin reaction or the history of a frank lesion or persistent exposure, is reasonable grounds upon which to suspect uterine syphilis.

DISCUSSION.

Dr. J. T. Burrus, High Point: After listening to this most excellent paper I am reminded of that Biblical statement that "he that humbleth himself shall be exalted"—and you know the other part of it.

It seems to me that Dr. Moore has wonderfully exalted himself by such an excellent paper as he has given us today. I cannot deny any statement Dr. Moore has made; but it does seem to me that it is high time for the North Carolina Medical Society to get in behind the State Board of Health and see to it that the State Board of Health provides and equips itself with a sufficient equipment to make the Wassermann examination. We all recognize the importance of the Wassermann examination; and just here I wish to say that I have very little confidence in the luetin test. But if the State of North Carolina would provide adequate facilities for doing these very important blood tests, with competent men in charge, then the State Board of Health of North Carolina would have taken a long step forward in the elimination of syphilis.

Dr. R. H. Lafferty, Charlotte: Undoubtedly it is true that we would find a great deal of syphilis among women if we could do what Dr. Burrus suggests as a matter of routine. This has been done in a good many clinics. We would be surprised to find how many positive reactions would be gotten in those cases not giving any history. Frequently at the Crowell urologic clinic in Charlotte we have occasion to examine women and to do these blood tests. We do it as a routine and are frequently astonished at the number of positive reactions obtained. It would be natural to suppose, then, that we would find a great many of these cases showing a primary lesion in the genital organs, but in examining the vagina in these cases it is rarely that you will find a lesion. Probably in the last two years we have not seen over four such cases; I could not give the exact figures; but I recall only three or four cases that showed a primary lesion, and several of the cases, after watchful waiting, developed a positive Wassermann reaction. I think the point brought out by Dr. Burrus is exceedingly important; that is, that it is high time for the State to take this up and help eradicate this disease. I wish I could give you the actual percentage of female cases that showed a positive Wassermann. The other day I picked up a Wassermann book and, starting two years ago, counted up the Wassermann tests during that time. I found that out of about 1,012 cases, 378 were positive. That, of course, was in a clinic where we expect to see many more cases of syphilis than in routine practice. The 634 negatives, of course, included some cases in which the Wassermann was done after treatment; but I cannot give you the exact percentage that were women. A large number among them were women of the colored race, which calls to my mind the question I asked before another section: what are we to do with our syphilitic cooks and nurses? In our clinics

we have that question coming before us every day. Here is a woman that gives us a positive Wassermann has lesions either primary or secondary. Is she to be allowed to continue work or is she to be stopped from work and from pay? Then how is she to get treatment without money? If we discharge her and employ another we are in just about as bad shape though we may not know it. If the State or some foundation could arrange that these cases be treated at slight cost it would help a great deal toward solving this problem.

Dr. Oren Moore, Charlotte: In regard to what Dr. Burrus has said I want to say I fully agree with him. As to the hardship imposed on the individual undergoing anti-syphilitic treatment which Dr. Lafferty mentions I can only say it has to be paid for at the usual price. The picture Dr. Lafferty draws is no new one to us. But as Dr. Burrus has brought out, every patient should have the benefit of a Wassermann. We have a number of these cases to handle and the State would do a great work by providing such free examinations. As to the luetin test, I think it has only confirmatory value; the Wassermann is a good deal more conclusive.

A simple question of uterine hemorrhage is much more complex than it would at first seem. We cannot by any means rule out other factors beside gross pelvic lesions, as a cause in any given case. The intricate relationship between ovaries, the thyroid and all the other glands of internal secretion cannot be ignored. But, as Dr. Leinbach mentions, it is especially the cases which are backed by blood findings, or where the husband has a frank syphilis that we should suspect. However, by a careful selection, by routine blood examinations, a number of these troublesome bleeding cases can be cured. In conclusion I desire to thank you for the cordial reception you have given this paper.

THE EYE, EAR, NOSE AND THROAT

Dr. E. R. Russell, Asheville: The Eye, Ear, Nose and Throat Section will please come to order. As the Secretary, Dr. J. G. Murphy, of Wilmington, is not here, I am going to ask Dr. Matheson to act as Secretary. I am sorry there is not a larger crowd here; it is a hard place to find. But as we are going to take a drive over Biltmore this afternoon, I am going to go ahead with what few remarks I have to make.

THE OTHER SIDE OF OUR WORK.

E. Reid Russell, M.D. F.A.C.S.

To follow in the footsteps of our first Chairman, Dr. K. P. Battle, Jr., is an honor within itself, and I thank you sincerely for electing me Chairman of this Section. I wish now to direct your attention, not to diagnostic problems or operative technic, but to consider our own practical experience in the daily handling of the diseases curable by medical means alone.

As much credit is due us for preventing and minimizing the complications as in our skill in handling the more serious complications that may and often do follow, unless timely treatment has been used. For instance, we have the persistent class of troubles caused by the lachrymal apparatus. I have carried out a line of procedure suggested by Dr. Risley of Philadelphia, for some time with more or less success. The object is not to slit the lower puncta and lachrymal canaliculus for the passage of the probes through the nasal duct to the floor of the nostril, or to use any violence or effort to force the probe, as this very thing causes a traumatism that is more serious in its results than the trouble we wish to cure, as a simple, temporary case of retention is by so doing changed into an incurable obstruction of the duct. Often the obstruction is in the nostril, a disease or anatomical deformity blocking the lower opening of the nasal duct near the floor of the nostril and back of the inferior turbinate. In many cases the retention is only transient, due to a "cold" in the head, and frequent recurrence may bring about a permanent thickening and closure of the lumen of the duct.

Catarrhal conjunctivitis or blepharitis from eye-strain, may lead to closure of the puncta. In such cases after the use of 2 per cent. solution of cocaine, we simply irrigate the sac and nasal duct with an alkaline

solution, repeated in a day or two, if necessary. The neglect of such cases results in the mucopurulent or purulent dacryocystitis. A four per cent. solution of cocaine is now used, followed by a 1 to 5,000 solution of adrenalin, syringed into the sac, and let this remain for ten minutes, and repeat at the same time using this in the nostril. After the action of these drugs an alkaline solution is used through the duct; second a one grain to the ounce of silver nitrate solution is used, and follow this with the same alkaline wash in a few minutes; or a very mild solution of tincture of iodine. Cold compresses and alkaline and astringent washes to the conjunctival sac are used at home in the acute cases. Should it still be impossible to irrigate the nasal duct, the lower canaliculus is slit, but not the common duct. A fine probe with a bulbous extremity is now passed, and with great care attempts are made to pass it through the duct. Should this not answer, a No. 3 Bowman's probe is tried, using no force. It may be well to wait a few days if not successful, continuing the home treatment. A permanent cure is often the result. Acute infection of the nose and naso-pharyngitis, a "cold" and "sore throat" cause about 90 per cent. of the cases of mastoiditis, purulent sinusitis, etc. Timely treatment will prevent these complications. It would be wise for us to advise about cold baths and fresh air sleeping, which are at times abused, especially in children susceptible to bronchitis and laryngitis, by having them sleep out of doors in bad weather. A preliminary treatment of most of our operative cases would make them easier and more sure of a prompt recovery, also lessening hemorrhage and shortening the convalescent period.

Hypertrophic rhinitis is another class of cases that should have both medical and surgical treatment; the mucous membrane cleansed and the chronic inflammation that produces it cured. I find that camphor, five grains, and menthol, two or three grains in an ounce of liquid petrolatum is both antiseptic and a local anesthetic, and this is thoroughly applied to the mucous membrane, after nose is cleansed.

Chronic granular pharyngitis may be destroyed by surgical means, but the chronic inflammation that produces these granulations may be cured by using ten grains of zinc chloride to an ounce of glycerine, and a little C. P. hydrochloric acid will prevent the zinc precipitating out as oxychloric and making the solution inert.

Chronic inflammation may be prevented, such as laryngitis, tracheitis and bronchitis, if the patient is treated in the first stages af the "cold" by a good sweat, either by exercise, Turkish bath, or just an ordinary hot tub bath, hot drinks not forgetting a big dose of castor oil to help in the eliminating process and restoring the normal circulation. An

alkaline spray is used to open up an obstructed nose, followed by a powder made up of two parts by weight of boric acid and one part of zinc stearate, or fuller's earth may be used instead. If seen in the second stage of the disease and the serous discharge is troublesome, one grain of atropine to two ounces of liquid petrolatum is used.

Acute catarrhal sinusitis that accompanies the acute rhinitis may be cured or prevented by the treatment of the primary disease. Here an application of cocaine solution to the region of the nasal openings of the sinuses and mild suction and oil are alternately applied. In chronic purulent rhinitis, a local treatment can be given at home, of one dram each of boric acid and borax to one ounce of petrolatum. A small piece of this is placed in each nostril at bed time, followed by a bicarbonate of soda douche in the morning. In atrophic rhinitis the object is to increase the nutrition by stimulating the blood supply short of causing inflammation. Here, thymol, grain one, oil of eucalyptus, drams one, in liquid petrolatum enough to make two ounces, is used after the nose is cleansed. This causes some redness of the mucous membrane, destroying the molds and bacteria that swarm in the secretions. Dr. J. A. Thompson, of Cincinnati, recommended this in a paper some two or three years ago. The patient uses this for several months. The natural oil is used and not the synthetic.

Suppurative otitis media, both subacute and chronic, may often be cured by a well ordered treatment. I have used with more or less success, the following (I do not know where I picked this up): Hydrogen peroxide, two ounces, alcohol, one ounce. With the use of a cotton tipped applicator the ear is thoroughly cleansed with the solution, then dried. Now either the dry method or wet method may be used. If irrigation is resorted to, it should be done with great care. A xeroform gauze half inch wide is packed loosely against the perforation, in the tympanic membrane, not pressing it, and changed as often as it becomes moist; or boric acid will produce good results. The whole external auditory canal is filled with the boric acid, but this is only used where the perforation is large, or another treatment which often proves effective may be used as follows:

Rescorcin, drams one,
Formalin, minims twenty,
Alcohol, drams three,
Aq. dest., q.s. ad ounces sixteen.

A tampon saturated with the above solution is inserted well into the canal and changed at first, daily; later, at longer intervals.

For the repair of the tympanic membrane, I have procured the best results by using trichloracetic acid or Okuneff's method. After the use of a 10 per cent. solution of cocaine, applied to the perforation, then the edges touched with a very small cotton probe wet with the solution of trichloracetic acid, a white eschar forms. It is necessary that no cocaine be left about the perforation.

In external otitis and myringitis I have used for a long time a five per cent. phenol solution in glycerine. Later ichthyol, five per cent., was suggested. This is also introduced on a tampon into the canal for the relief of furunculosis of the canal or where there is an inflammation.

Would it not be a good idea to discuss more often "The other side of our work," the treatment, as religiously as we do pathology and the technic of our most interesting operations?

PRELIMINARY IRIDECTOMY.

K. P. Battle, Jr., M.D., Raleigh, N. C.

In the surgery of senile cataract it has been said that the ideal result is the restoration of the normal acuteness of vision with a round, black, central pupil. Doubtless this is true, but practically the good which the surgeon should have before him is not that. Useful and satisfactory vision is the aim, the controlling aim. All else is of secondary importance. This is what the operation is for, and in deciding upon every step of the work he should ask himself what will most surely bring it about. This is the destination, and safety first is the rule of the road.

That this has been adopted as the guiding rule by the profession at large is shown by the fact that in the history of the operation for cataract it has controlled the destiny of the various procedures that have been proposed and tried out. A new method may be beautiful in theory and may show brilliant results in the hands of skillful leaders and of many of their followers, but if the test of time shows that in the hands of the average man the chance of useful vision for the patient is lessened by the new method it does not live.

A conspicuous example is extraction without iridectomy. When successful the pupil is a beauty and if the vision is also good the patient is a walking advertisement, but the profession decides in increasing numbers that it is too risky. Many leading operators who formerly did the so-called simple operation have abandoned it and now include the iridectomy.

I am assuming that the combined operation is best. And I agree with those who claim that it is still safer, on occasion, to do a preliminary iridectomy and complete the operation by doing the extraction at a later date. And I go further and argue that if this is best under exceptional conditions, as when there are complications, or there is only one eye, and it is desired to give the patient the very best hope of sight, then it should be the plan of choice in all cases; in other words that the patient should have the benefit of this best chance whenever circumstances are favorable. But I would not be misunderstood as urging it as an invariable rule. Circumstances are often not favorable. The matter of expense may be the deciding factor or the patient may prefer to have it over and done with at one time.

Preliminary iridectomy is equally preferable in the intracapsular operation as in others. W. A. Fisher says of it: "In the hands of less experienced operators, however, and indeed often in those of more experience, better results are to be expected if the extraction proper is preceded by a preliminary iridectomy." But a discussion of the Smith method is purposely excluded here and this paper has reference particularly to the standard capsulotomy operation or its modifications.

It is unnecessary to more than recall, first, that under the plan here advocated the iridectomy is made exactly as if solely for a medium sized artificial pupil, directly upward, the knife used being preferably the keratome; and second, that when the lens is delivered, usually five or six weeks later, the Graefe knife is employed and the other steps of the operator's favorite method are taken as usual.

Let us examine then the advantages of the plan under discussion.

1. The cause of most failures in the usual cataract operation in the hands of experienced surgeons is some misconduct on the part of the patient. His control over the movements of his body, and particularly of his eye, is vitally important; and the preliminary iridectomy greatly favors this control.

An unfortunate movement at a critical period is usually due to pain or to the fear of it. When there is any real pain in cases that are properly cocainized it is commonly produced by the seizure, pulling out and cutting of the iris. If it occurs it is only during the first operation when any loss of control is much less likely to be harmful, and when the time of the second operation comes and the more essential and at the same time more dangerous work of removing the lens is to be done, the patient has comparatively no fear or nervousness. He knows his doctor and has confidence in him. He is now willing to believe it

when he is told that the painful part is over and that this time there is to be none at all. He is now more able to give his full help. He has had a rehearsal.

2. Moreover the tendency to the involuntary rolling up of the globe during the cutting of the iris may be more surely checked and damage prevented if the iridectomy is a preliminary one, after the use of the keratome, than it can be if it is done when the globe is weakened by the large incision made by the Graefe knife for the extraction.

The firm condition of the globe due to the shortness of the keratome incision favors the use of the method of doing the iridectomy which in my opinion is the safest of all. This is for the operator, with a fixation forceps without a catch (so that it may be released instantly in case of need) in the left hand, to hold the ball steady by grasping the conjunctive and episcleral tissue just blow the cornea, pull out the iris with the iris forceps in the right hand, and have a skilled assistant ready with a de Wecker scissors to cut it when he is told.

3. The perfect coaptation of the edges of the straight, cleanly cut incision made by the keratome blade results in a healing which is often astonishingly quick, while the iris, not being bruised, accepts the cutting without reaction, and the uneventful recovery is complete in three or four days.

On the other hand, when the extraction is done, the iridectomy having long before been made, no retained lens matter and tags of capsule lie in contact with a wounded iris and there is less prospect of the iritis which is so often a painful cause of a poor result.

4. During the second operation it may be expected not only that there will be no pain, since the iris is not to be cut or interfered with, but also that there will be no hemorrhage except that from the conjunctiva, which is outside of the anterior chamber. The advantage is obvious.

5. It has been objected that the preliminary iridectomy, while almost invariably successful, is not entirely without risk, but it is plain that if conditions are such that an eye cannot stand this comparatively mild procedure it would certainly be more injured by the more severe complete operation. In fact it is quite possible that an eye that could not stand a double amount of traumatism inflicted at one time, the iridectomy and the extraction, might yet have the vitality to resist successfully the same treatment if it were divided and the second undertaken after the first is recovered from.

6. Another advantage in certain cases is the improvement of vision to some extent during the time between the iridectomy and the extrac-

tion. The question of the best time for operation in the development of a cataract—whether complete ripeness should be demanded or entirely disregarded—is of great interest, but it is outside of the scope of the present paper. The principle of Preliminary Iridectomy for Choice holds good for all cases, whether the time chosen be early or late. But when maturity or near maturity is waited for and when the central opacity exceeds the peripheral and a trial dilatation with a mydriatic gives better sight, especially if the development is slow, then the artificial pupil of the preliminary iridectomy will be a source of comfort during the period of waiting.

7. From the point of view of the operator the work is made less difficult from beginning to end. A well-placed and satisfactory incision is sure if a sharp keratome is used, and if proper attention is paid to the insertion of the point, to keeping the plane of the blade parallel to that of the iris after the point is clearly seen to be in the anterior chamber, and to pressing the knife far enough onward to make the cut five or six millimeters long. And if the iris is taken hold of near the pupillary edge and not cut off before a bit of the black uveal surface is brought into view the result will be good. The spatula is used to replace the cut edge of the iris if caught in the wound, and the first chapter is closed.

Later the extraction is approached with a confidence and an assurance of success that give the operator great satisfaction. At other times in his own or the work of others, in the combined operation as usually done, the behavior of the iris during the incision by the Graefe knife has been an unknown quantity and not to be predicted. He has probably seen it push forward against the blade and be shaved by its edge as with a razor, threatening every instant to lean over too far. And though he may have not seen it actually cut and the anterior chamber fill with blood before the completion of the section he knew that it was always possible, and he feared it.

In like manner, when the entire operation is done at one time he could never be quite sure of what the behavior of the patient was going to be in the critical stages. He might prove unexpectedly nervous or make a sudden movement at a time that might be ruinous.

But after the preliminary iridectomy is over and the time for the extraction is at hand the picture is very different. The iris is now simply the iris and not an anxiety. It may still be possible to cut it and show blood, but, especially if atropine has been used shortly before so as to widen the coloboma, it is practically out of the field and gives no trouble. The surgeon now feels that he knows how the iris is going

to behave and how his patient is going to behave; he feels that he has the situation in his own hands, and that he can make his incision just as he wants it. The incision may not be the operation, as the great Frenchman claimed, but it is certainly more than half. There being no hemorrhage in the anterior chamber, the cystotome or the capsule forceps or both may now be used, the lens delivered, and the toilet of the wound completed, all under the best of conditions.

TRACHOMA, WITH SPECIAL REFERENCE TO ITS OCCURRENCE IN NORTH CAROLINA.

John W. MacConnell, M.D., Davidson, N. C.

In a special section of our State Society devoted to the Diseases of the Eye, Ear, Nose, and Throat, where all are familiar with the anatomy of the parts and the pathology of the disease, it will not be necessary to go into any details as to the character of the disease "trachoma" any more than to refresh your minds. My choice of this subject is not due to the fact that I consider trachoma widely prevalent in North Carolina, nor that it may be so in the immediate future, but because I believe we have more cases than commonly supposed, and that I think the future economic conditions will favor its spread rather than diminish its occurrence. All of this will cause some discussion and difference of opinion in which I trust we will all find profit.

Trachoma is a disease probably as old as the human race, for in those parts of the world where we generally consider man to have first multiplied, it has been prevalent since time immemorial and still flourishes in full vigor. The name is derived from the Greek "traxus," meaning "rough," and is significant of the fact that a rough granular condition of the lids is the outstanding feature. Prior to 1897 the occurrence of the disease in an individual did not debar him from entering our ports, but since that time the occurrence of an active trachoma debars any immigrant from entering the United States. Since our inspection has been carried on by men who have become very expert in the diagnosis of the disease, it is reasonable to suppose that comparatively few cases are now admitted, though naturally some pass the inspectors. An advanced case of trachoma is easy to diagnose and occasions no trouble, but there are cases on the border line which must be kept under observation for weeks before an accurate diagnosis can

be made. It is sometimes contracted on the voyage over—witness Dr. Schereschewsky's report on 67 cases on the *Oldenburg* of the North German Lloyd line, 48 of whom had trachoma, contracted from four cases which left the home port. Certainly, all care should be used and all necessary time be taken in establishing an accurate diagnosis, for to debar a desirable immigrant for an eye disease which might not be trachoma would manifestly work an injustice to him, and also deprive us of a desirable citizen, while to admit one who might be later a charge upon the public would be an economic mistake. The writer has seen families of immigrants divided—part of them deported and part allowed to remain on account of the incidence of the disease among some of the members.

The difficulty in establishing a diagnosis lies in the fact that the disease develops rather slowly, and that we have not yet isolated the organism that causes it, and we do not know whether we are dealing with a mixed infection or an entity.

Trachoma begins as conjunctivitis—may be of a mild and slowly progressive type, and again as an acute inflammatory attack. The infective agent seems to be conditionally active, for in some cases we find trachoma present in only one eye for a long period, and of a given number of cases exposed only a limited number will contract the disease.

We may have in the beginning all the cardinal symptoms of an acute inflammatory condition of the conjunctiva: redness, swelling, photophobia, secretion. Sometimes the disease appears slowly and the patient may not be able to tell the time of the beginning of the attack. Eversion of the lid shows a thickening of the retro-tarsal fold which is sometimes thrown into folds or rugae. Next appear the follicles which are not true granulations, but are covered with epithelium, and there begins the obliteration of the vessels of the conjunctiva in the retro-tarsal fold. As this advances we have the formation of the connective tissue elements in the follicles, and as the cases progress there may be the complete obliteration of the vessels, and the lymphoid tissue is finally atrophied until we have only scar tissue resting on the tarsal plate. This would be the line followed by an untreated case of trachoma without complications, and unfortuately it is about all we can hope for in *treated* cases, for outline of treatment which is familiar to all—by grattage or Knapp's forceps we remove all the follicles and lymphoid tissue and depend upon our end result being smooth scar tissue without any involvement of the cornea.

Untreated cases seldom progress, however, without complications, and 75 per cent of the cases will result in blindness either partial or

total, for the involvement of the cornea generally occurs and pannus forms over the upper part of the cornea or may be entirely over it, and we have corneal ulcers, opacities, and ectropion or entropion, with or without trichiasis. These are usual developments, but may take practically a lifetime to take place—the occurrence of the disease in childhood resulting in blindness in adult life—in any case there is a long period in which the patient is a constant sufferer and a source of danger to others, and in the end probably a public charge. A disease of such character is of great economic importance.

Trachoma is spread practically over the entire world, and though it was said not to be prevalent in Europe until the return of Napoleon's armies from Egypt in 1808, it is now the most common cause of blindness in Europe, causing 60 per cent. of the cases. In Poland and Galicia it is specially prevalent and it is from these sections and from Italy and Greece that we receive most of our cases in recent years. It is rare in France, and in England and Scotland, but prevalent in Ireland. The following table gives the relative proportion of trachoma cases to that of other diseases of the eye (stated in percentage) in different European countries: Russia 29, Italy 27, Greece 25, Portugal 25, Bulgaria 20, European Turkey 18.3, Hungary 12, Holland 7, France and Belgium 4.

This percentage shows that economic conditions bear a direct ratio to the incidence of the disease, for the crowding and unsanitary conditions of the countries heading this list are the causes of the high percentages.

Just at present we must revise all our figures and readjust our perspective, for the present war has brought about an entirely new state of affairs. English and Australian troops are serving in Mesopotamia with Hindus, and that in a country with a high trachoma incidence, and in a section famous for its dust storms and unsanitary conditions. Practically the entire population of some of these Turkish villages have trachoma. It is rare to see a Persian or Syrian who does not show trachoma scars even in this country, and, of course, only the selected ones enter our ports. France and England have large numbers of troops in Salonika, probably a half million, and some of them colonials from Northern Africa, and all housed in a condition that leaves much to be desired, for these vast armies are not tented, but are crowded in barracks and at times billeted of course with the local population. Formerly this would not have meant a great deal to us in North Carolina, for we would have considered North Carolina far removed from such, but today Russian troops are serving in France—thousands of them are also prisoners in Germany. In a scant twelve months many of the

sons of our Old North State will be serving in the trenches in Flanders, or knocking at the gates of Berlin, and some of us will be among them. So what was once a problem of Europe will become a problem with us. Many of our returning soldiers will bring European diseases with them, and among these will be an increase in trachoma. Of all the states in the Union, I doubt not that North Carolina has the least trachoma, but that does not mean that it is entirely absent from our borders at present. We have only one per cent., or less than one per cent., of foreign population in our borders; we are the purest American strain on the continent today in white blood. The negro is not susceptible to trachoma, only four cases being reported in the survey made of North Carolina by Surgeon Foster of the United States Public Health Service in 1914. The native American is, however, quite susceptible, and in eastern Kentucky, a population purely of the pioneer type, the Public Health Survey showed 1,280 cases among the mountain whites, 7 per cent. of the cases examined. In Jefferson County, Kentucky, not included in the preceding figures, there were 805 cases —four only being colored.

The survey in North Carolina in 1914 was confined to a few counties in the west, and to the State School for the Blind in Raleigh. Only 32 cases were diagnosed among the school children examined, and of these 18 were in the Indians on the Cherokee Reservation. No trachoma was found in Buncombe or Haywood Counties—4,160 children being examined in the former and 1,157 in the latter; so, certainly, there is no great amount of trachoma in this section of the State, and yet no one would say that this survey unearthed all cases of trachoma. There are probably ten times the reported number of cases in the State. A recent questionnaire to the members of this section elicited replies that would check up almost that amount, though some of the members report having seen no cases in the past few years. In my own practice I see about two new cases a year—mostly native. In several Persian students at Davidson College in the past few years I found trachoma scars in all, but active cases in none. I have under treatment now seven cases in one family. Out of nine members in the family, only the father and one older boy have escaped so far. These children were in school and I am expecting other cases to develop, and, in fact, have heard that there were other cases in the same neighborhood, and will try to ferret them out soon. These cases are not yet well, but much improved, having been under treatment for about ten months with the conventional treatment of grattage and roller forceps. I use a general anesthetic for the younger children and make the grattage very thorough. Iced compresses, argyrol and yellow oxide salve completed the medica-

tion. All the cases I have seen were native born, and I have not found the source for infection, though I am inclined to place some measure of belief in the fact that Syrian peddlers who frequent our section of the country might be the cause of the trouble.

Under the present economic stress and great increase in the population of our manufacturing centers and the close contact of these people we must expect more cases to occur. We cannot expect to continue to be in a measure isolated from the rest of the world, or from the same conditions that prevail elsewhere, and we should be ready to enforce a strict quarantine against trachoma cases when they appear. The proverbial ounce of prevention in this case is even of more importance than usual, for until we find a sure and rapid cure for trachoma we must spend the greater part of our energy upon its prevention.

DISCUSSION.

Dr. E. R. Russell: Dr. McConnell's paper will be opened for discussion by Dr. J. P. Matheson, of Charlotte.

Dr. Matheson: Personally, and I am sure I also voice the sentiments of this Society when I say that we are due Dr. McConnell our thanks and that we do appreciate his bringing this timely subject before us. I will admit, when I was notified that I was to discuss the subject of trachoma in North Carolina, I wondered why in the world Dr. McConnell was going to bring before us such a rare disease in this community and uninteresting subject, but since hearing his most excellent paper, I am greatly pleased that he did bring up the discussion of this subject at this time.

Personally, I have had only one case of trachoma in my practice in Charlotte, and this was a foreigner who had moved to Charlotte, coming direct here from the Baldwin Locomotive Works, Philadelphia.

I am very certain Dr. McConnell's paper will increase our interest in the subject and make us more diligent in our search for these cases, and I feel sure in the future years we shall all have more of these cases to deal with than we can at this time imagine. Dr. McConnell has given the subject thorough study and has brought it to us in the most interesting manner.

Dr. C. N. Peeler, Charlotte: I wish to express my appreciation of the timely paper just read. The danger of trachoma has been more forcibly impressed upon me than ever, and especially so because after the close of this great war we will have greater responsibility because of this condition. In this connection I wish to mention a reprint I received some time ago from Dr. Crawford, of Nashville, Tenn., con-

taining the report of fourteen cases of trachoma treated successfully with Bulgarian bacilli. I have had no experience with this treatment, but simply mention it for what it is worth. Again I thank Dr. McConnell for this timely and interesting paper.

CHAIRMAN: I would state that I have been practicing twenty-one years, and I have yet my first case of trachoma to see in North Carolina. At present, I have a case from Florida. He will be up here in a few minutes, and I would like to have his case diagnosed. He is in one of the city schools. Any further discussion of Dr. McConnell's paper?

DR. MCCONNELL: I am glad the members have discussed the paper so freely, and I appreciate the kind remarks. My experience with trachoma was obtained while on service with Dr. Scherewsewsky in the Presbyterian Eye and Ear Hospital, in Baltimore. While the report of the United States Marine Hospital service showed only thirty-four cases in their examinations of the school children in Western North Carolina, I have had reported to me over one hundred cases in the recent questionnaire, though many of these may be repetitions, and also the cases were in some instances developed out of the State.

HEADACHES IN CHILDREN—CILIARY STRAIN.

C. N. PEELER, M.D., CHARLOTTE.

In offering this "bit" of work to the sum total that shall be presented to this Society I have no apology to make, because in the study of headache in children and its relief we are adding to the sum total of strong manhood and womanhood in the springtime of life. In this day of preparedness for world crises we think the growing child calls for closer study and care on the part of both physician and parent. When children are brought to us complaining of pains in the forehead, in or behind the eyes, in the temporal region, we should inquire into their modes of living, the ventilation of sleeping rooms and schoolrooms, their diet and digestion, the amount of exercise each day. The regulation of these may relieve the child of much suffering.

On entering school the child begins a new life period, and as it progresses in its studies, more continuous use of the eyes is required, and this infrequently causes pain in the frontal region which may be attributed to the strain on the eye muscles at accommodation; the accom-

modation not always, but in many cases, an error in refraction, or a weakness of the muscle of the eye may be present. A headache under such conditions increases during the day and usually disappears during the night. During the holidays it almost invariably ceases. In the most severe cases the children are nervous, they often vomit, and are restless during sleep.

The symptoms of asthenopia are headache, strained feeling in or above the eyes, fatigue, burning and smarting of eyes, blurring of vision, lachrymation, photophobia, nausea, vertigo, blepharitis marginalis, styes, and various forms of nervousness.

These symptoms can hardly be said to form a symptom complex because rarely any patient presents all or even a majority of them. It often happens that headache is the only symptom complained of and the patient has been referred to the ophthalmologist by a physician who has exhausted all the means at his disposal in a vain effort to locate its cause. Other patients present two or more symptoms which point to the eyes as its cause.

Asthenopia is given different divisions by different authors. Ordinarily four forms are recognized: accommodative, due to error of refraction and to strain of ciliary muscle; muscular, due to abnormal strain of extrinsic muscles of the eye; nervous, due to a fault of nervous system; reflex, due to a diseased condition outside the eye and nervous system.

In accommodative asthenopia fatigue of the ciliary muscle is caused by the work of this muscle in trying to produce a perfect image on the retina, either in an effort to overcome the astigmatic error or to overcome a hyperopic condition. In either case we have fatigue of Müller's muscle, but in astigmatism may I suggest the muscle of Bruecke has a greater strain, trying to counterbalance the irregular curvature of the cornea or the lens. To my mind this fact explains why a person with a small astigmatic error often suffers with a severe headache, with no symptoms showing in the eye itself.

In the hypermetropic, or shallow eye, rays of light come to a focal point behind the retina instead of upon it—as they do in emmetropic or normal eye. This is a common defect in children of tubercular parents. Hypermetropia cannot be corrected too early in life, as study and close application bring on a variety of symptoms due to the strain on ciliary muscle. As a rule these children excel in outdoor sports. They often boast of being able to read great distances—frequently read all of test types made for twenty feet distance without error. The sense of sleepiness may be exhibited even when the child has read only for a short time.

The condition of astigmatism which causes numerous reflex disturbances is due to a state in which either the cornea or the lens has a greater curvature in one meridian than the other. In the hypermetropes and myopes the eye may be considered a sphere, but in astigmatism the rays of light entering the eye are bent in one meridian more than the other, according to the curvature of each meridian. This condition causes a focusing at different points; thereby the objects become more or less blurred, distorted or irregular in all its parts.

In muscular asthenopia, we have an unbalanced condition of the extrinsic muscles of the eye. To have normal vision the team work of these muscles must be perfect so that rays of light may fall on macula of both eyes. Where there is convergent excess or a divergent insufficiency or the reverse condition, or the combination of both, muscular strain, headaches, diplopia, may follow in the order named.

The third and fourth divisions of asthenopia, viz., the nervous and reflex, I shall dismiss because these conditions are rarely present in the child.

Very few children have normal eyes. Cohen in an examination of 299 eye patients under atropine, not one case of emmetropia. Hansen found 26 emmetropic eyes in 1,610 examinations. Duerr, 30 in 414 cases. Randall, in an examination of 1,834 school children, found that 7.36 per cent. were emmetropic.

In an analysis of fifty school children complaining of headache alone or with other symptoms:

Hyperopic	36 per cent
Compound hyperopic astigmatism	30 per cent
Simple hyperopic astigmatism	16 per cent
Simple myopic astigmatism	6 per cent
Emmetropic	6 per cent
Myopic	2 per cent
Mixed astigmatism	2 per cent
Heropic in one eye, myopic in other eye	2 per cent
Accommodative apparatus at fault	44 per cent
Astigmatism	56 per cent

According to age—

Weak accommodation: Ages 8-12, 12 per cent; 12-15, 8 per cent; 15-18, 24 per cent.

Astigmatism: Ages 8-12, 18 per cent; 12-15, 10 per cent; 15-18, 28 per cent.

In an analysis of one hundred cases of eye strain in adults, ages 18-35, accommodative apparatus at fault, 40 per cent; astigmatism, 60 per cent; headaches, 68 per cent.

It is to be noted that students of the advanced grades are more often attacked with headaches than those of the lower, the fourth grade and the high school work giving the most trouble.

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EXACT METHODS IN ESTIMATING THE REFRACTION.

Dr. Gaillard S. Tennent.

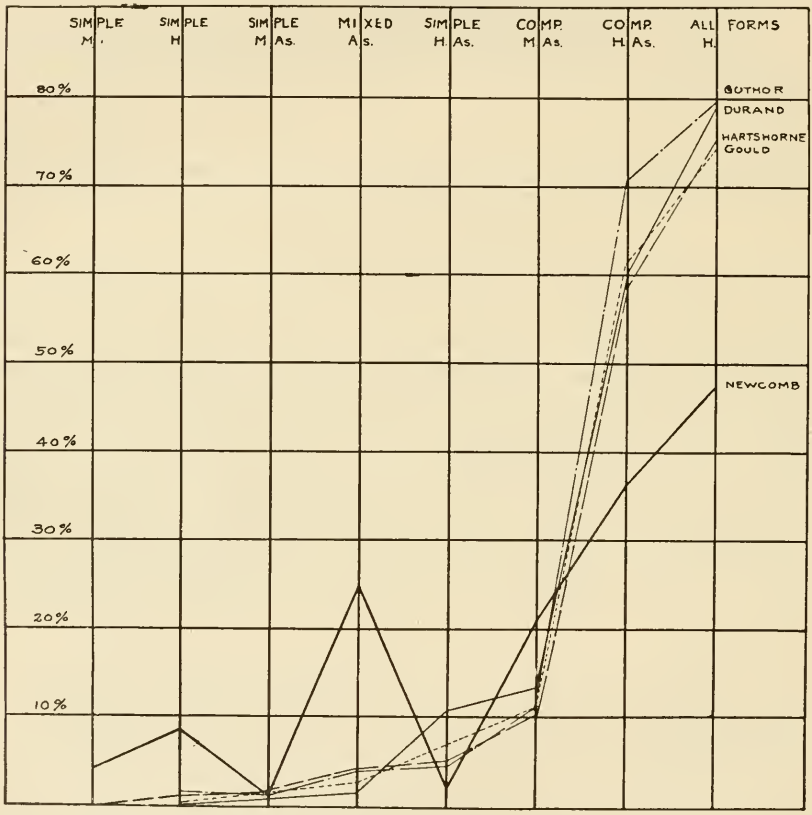
The subject of estimating the refractive index of the eye, in common parlance, "refraction," is a perennial one, one that has been the topic of such a vast amount of literature, and one that has been studied from so many different viewpoints, that one hesitates to address any audience upon the text because the chances are slim, indeed, of saying anything new, or even saying anything old in new language. Yet even the most optimistic student must be struck at the very outset of his career with a fact that becomes more and more obvious to us as we broaden our knowledge of the subject, namely, that in common with every other branch of medicine the study of refraction is as yet far from being an exact science.

It is not in the province of this paper to say why this is so, further than to make the hackneyed statement that as in all other studies in physiological and pathological phenomena, we find it complicated at every turn with a force that in its very essence as well as in its practical bearing on the subject is an unknown quantity. We may dismiss this side of the question until the scientists succeed in measuring the nervous force and make of it an absolute instead of a variable in the equation. Let us rather turn to the practical aspect of the matter and see if we cannot contribute a mite towards elevating at least one phase of the many-sided subject to a plane that approaches that of the exact sciences.

In order to present the issues clearly I have elected to arrange the thesis of this paper in the form of a series of questions, answering some of the questions with my own general observations, and some with more specific information gained from my own and the recorded experience of others.

I. *What phase of the subject offers the most definite field for advance in placing our work on a truly scientific basis?*

In answering this query it appears to me that the accurate determination of the static refraction index of the eye is the foundation of the whole system of our work and our aim should be to build it with an exactitude that should at least place this foundation on a par with the



bases of other exact sciences. Along this particular line, nature, education and a reasonable degree of scientific training have so far favored us that we can hope to keep abreast if not ahead of workers in other medical fields. Nature has lent us the exact laws of optics, and a clientele possessed of intelligence and perceptive faculities fully equal to responding accurately to our most delicate tests. It is up to us to develop the scientific training.

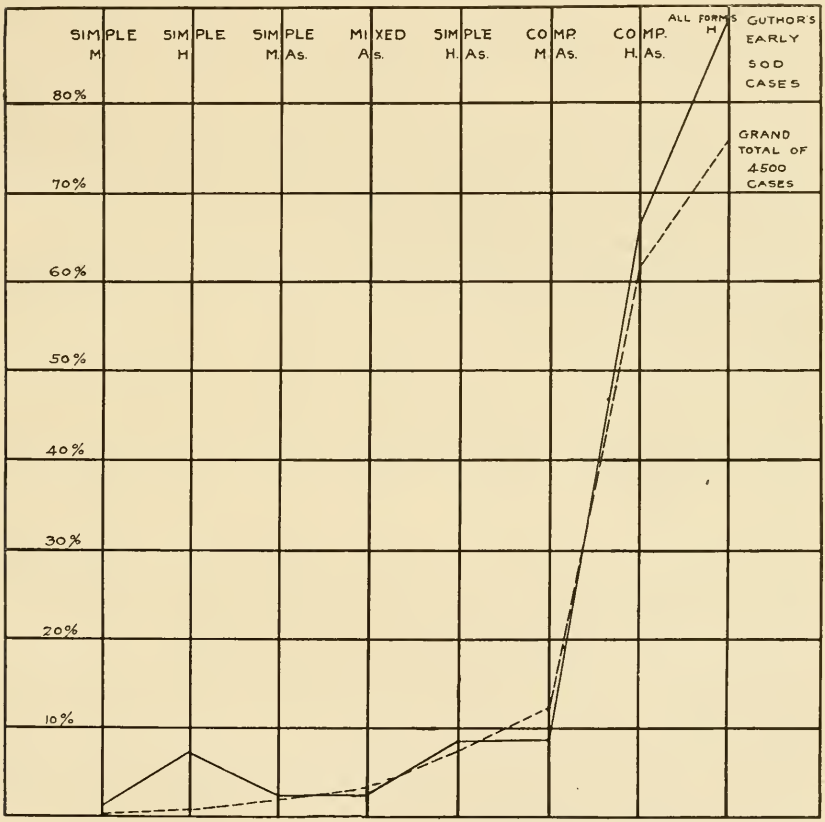
II. *The aims of this paper.*

It is the object of this paper to stimulate the adoption of uniformly precise and painstaking methods in estimating and recording the index

of the static refraction of the eyes of the average patient. It is not the purpose to touch upon the treatment or correction of refractive defects except in so far as they may bear directly on this object.

III. *Is this paper called for by existing conditions?*

I think we can answer this in the affirmative. If for no other reason the existence in this and many other states of a legalized body of so-



called optometrists not only excuses oft-repeated statements of our position in the matter and our aims, but, in my mind, calls for at least one aggressive paper on the subject before our State Society each year. Just why this is so I shall attempt to show further on in connection with certain published statistics of case records that indicate that all of us are not up to the mark.

IV. *What are the general needs of the day?*

First of all, the general public and our patients in particular demand and are entitled to the best that scientific training and accurate methods can accomplish. Today this is true as it has never been before, because

the rural communities of our State are rapidly emerging from the unfortunate illiteracy of the past and in many sections are leading the towns and cities as educational centers. The rising generation of students should by all means be started on the right road; that is, it should be forced upon them that there is a wide difference between scientific methods and charlatanism. Our towns and cities are not only advancing educationally, but the additional demands of growing business and manufacturing are levying a toll on the nervous energies of our young people that was unknown a generation ago.

We as ophthalmologists are in the vanguard of the medicine of the future—the school of practice that aims at prevention rather than struggles with cure. It may be that we are only self-styled leaders in this direction, but it remains a fact that an ever-increasing number of our patients consult us along preventive lines rather than curative.

This leads us to a consideration of our own fitness to meet the needs of the coming day. We cannot escape the tendency towards specialism. The young man casting about for a special field no longer thinks of specializing in "eye, ear, nose and throat." If he is to master ophthalmology he must be an ophthalmologist. In our State, where the metal and chemical trades are negligible and the alien with low standards and prone to eye-diseases is almost unknown, ophthalmology means an overwhelming amount of refraction work, and we should specialize in refraction.

We should not be content to do work that differs in name only from that of the "optometrist." If we are so content, it throws discredit on the name of ophthalmology and fosters charlatanism.

It should be our aim to develop the requisite skill and to devote enough time, care and conscience to each patient to make a flawless diagnosis that could not be picked to pieces by the next man, were he so inclined. The ideal will be reached when a dozen men can examine in turn the same or a similar thousand patients and turn out statistics that are practically identical.

V. *What are our particular needs today as ophthalmologists?*

I think that a careful study of the accompanying table (Table I) will show that as long as there are men in our profession whose work shows such startling discrepancies as are displayed in this table the crying need is for more painstaking, careful, accurate work, more accurate and uniform methods, and a more uniform system of recording and nomenclature.

Some years ago my attention was attracted by an article by Dr. J. R. Newcomb in the *Ophthalmic Record*, May, 1913. At the time the figures struck me as being strangely at variance with my ideas of the

relative prevalence of the various errors of refraction. The 500 recorded cases are from the routine work of the author, and from the fact of their publication, one would naturally conclude that they represented at least his average work if not his best efforts. It is not stated whether or not the cases referred to were refracted under a cycloplegic, but the ages (all being below the presbyopic age) would indicate that they were cycloplegic cases.

More recently I have seen this article criticised in the same journal, the *Ophthalmic Record,* for September, 1915, by Dr. A. C. Durand. The author compares Newcomb's figures with 500 cycloplegic cases from his own practice, 2,500 mixed cases from the records of Dr. George M. Gould, whose reputation as a careful refractionist is well known, and 510 cycloplegic cases from the records of Dr. Isaac Hartshorne.

Acting on the idea that this carefully prepared analysis of 3,500 cases furnished an accurate measuring stick whereby to gauge the reliability of one's own work, I prepared a similar table of 1,000 routine cases from my own records covering a period of a few years prior to September, 1915.

In his article, Dr. Durand very properly indicates that the determination of the absolute, static condition is the great desideratum, the real object of all these examinations, and that the true estimation of this condition depends entirely on the most thorough suspension of the accommodation as well as on the most accurate measurement of the astigmatism, down to .12 D. if possible. It follows then that the higher the percentage of Comp. H. As. and the lower the percentage of simple M. the more accurate are the figures. Mixed astigmatism, being the transition state between the two, he rightly classes as the most vital of all the figures. My own interpretation of his ideas is that if one finds in his figures an undue percentage of mixed astigmatism, there is something wrong in his methods or his system of recording. On the other hand, if his percentage of mixed cases is below the average it depends entirely on whether the deficiency is made up by a corresponding increase on the H. As. side or the simple M. side. If the former, his work is of exceptional accuracy; if the latter it is to be regarded with suspicion.

The rationale of this is very simple. The most obvious cause of error, granting that the average of the skill and work is good, lies in the false assumption that every transition case whose sharpness of vision is increased by the addition of a minus sphere is lacking to that extent in normal hypermetropia (for modern figures prove conclusively that normal man is hypermetropic). The fallacy of this assumption is well known to all of us. If we act on it, we at once place many cases of low

H. in the M. column to the detriment of the very class of patients whose needs for accurate work are the greatest, namely, the transition cases.

In this table it will be noted that four of the tracings form a tolerably uniform curve, while the fifth, that of Dr. Newcomb, is strikingly different at each of the three critical points. His low percentage of Comp. H. and his high percentages of simple M. and simple H. show that he had not succeeded in obtaining or interpreting complete cycloplegia, while his unusually large percentage of mixed cases is hard to account for.

In preparation for this paper I tabulated 500 additional cases taken from an earlier period of my work, which show in lesser degree two of the same errors as do Dr. Newcomb's. The percentage of 7.9 of simple H. and .8 of simple M. show that my work at that period was faulty.

VI. *What specific methods are suggested as an advance?*

In studying my own work at different periods I was struck with the fact that in the earlier period I used atropin as a cycloplegic in 32.8 per cent. of cases, while in the later period the percentage had fallen to 8.4.

The first question that suggested itself was, "had I found atropin to be less effective or homatropin more effective?" I think that I can answer this question by saying that I now find both of them to be far more effective than I did in the earlier period, but that by improvement in my methods I have found homatropin to be almost the equal of atropin. Atropin I still regard as the most reliable and effective of all cycloplegics and one that I would use to the exclusion of all others were the purely scientific aspect the only consideration.

I have found that by following approximately the same rules as followed by the three other men whose figures are given in the table (Table I) and the use of a number of other expedients I can get fairly satisfactory results. I use homatropin in a one per cent. solution (some use it in two per cent.), one drop in each eye every ten minutes for sixty or seventy minutes; about the middle of the treatment substituting a drop of 4 per cent. cocaine solution for a drop of the homatropin, and conduct the final subjective test about ninety minutes from the beginning of the drops. Atropin I use in a one per cent. solution three times daily for five or more days, conducting daily subjective tests.

In addition to the subjective test with the ordinary letters, every case is first tried out with one of the clock face tests. The corneal curvature of every patient is measured with the ophthalmometer, and, while under the cycloplegic, and as a preface to the subjective test, the shadow test

is made. The subjective test should agree in essential particulars with at least one of these two objective tests. If it does not, the case is remanded for further examination, using atropin if possible.

As suggestions to others who may desire some new points, I may add that I now carry out the shadow test with both eyes uncovered and find that it is far easier to discover a difference of .25 D. in this way than by any other objective tests. In the final subjective tests I always give the patient the "third degree" by adding weak spheres to both eyes, alternating in an irregular sequence-plus, then minus, and then a plus before one eye and a minus before the other.

It is amazing how readily a difference of .25 D. can be detected in this manner, by making the patient answer the question, "better or worse?" In cases of a doubtful difference of .25 D. I generally go over the whole examination a second or third time.

I find that with the average patient near the end of the examination it is far easier to get accurate results from the question, "better or worse?" than from the repeated trials at deciphering the letters.

I may further add that whereas I used to consider an hour, not including the time consumed in using the drops, in the actual examination and testing of one patient sufficient, I now find an hour and three-quarters hardly adequate time, though this may arise from my natural slowness in interpreting the findings.

There is one specific point that I would emphasize. There is a large class of patients that may be termed unstable. Is there any ear-mark whereby we may pick out these patients other than the unsatisfactory answers to even our "third degree" methods? Recently in working out another series of 500 cases in connection with some research work, I was struck by the fact that those cases whose astigmatism was decidedly unsymmetrical showed generally all of the other signs of instability. By "unsymmetrical" I mean those whose astigmatism bore no pretense to symmetry, either as to angle or degree. These constituted 31.6 per cent. of the whole number. Further study showed that those cases whose convergence was deficient at the near point and normal or excessive at a distance, showed up 83.3 per cent. unsymmetrical.

I would suggest that these cases with deficient convergence at the near point be given an extra amount of attention.

VII. *What are we to conclude from this study of conditions?*

Without attempting a general summary I think we may conclude that it is evident from the increasing number of optometrists and others of that ilk that there is a crying need for more refraction work and better refraction work.

TABLE III.—ANALYSIS OF 5,000 REFRACTION CASES.

	Gould's 2,500						Newcomb's 500	Hartshorne's 510		Durand's 500		Author's 1,000					
	Cycloplegic		Natural		Total			Cycloplegic		Cycloplegic		Cycloplegic		Natural		Total	
	No.	%	*No.*	%	*No.*	%	%	*No.*	%	*No.*	%	*No.*	%	*No.*	%	*No.*	%
Comp. H. As.	1,230	61.3	282	57.3	1,512	60.5	36.8	300	58.8	301	60.2	517	70.7	160	59.8	677	67.7
Comp. M. As.	233	11.6	74	15.0	307	12.2	21.1	55	10.8	67	13.4	84	11.5	44	16.4	128	12.8
Simple H. As.	141	7.0	41	8.3	182	7.2	2.1	25	5.0	54	10.8	36	4.9	31	11.5	67	6.7
Mixed As.	57	2.8	15	3.1	72	2.9	25.1	21	4.1	8	1.6	31	4.2	4	1.5	35	3.5
Simple M. As.	39	1.9	8	1.6	47	1.9	1.6	7	1.4	4	.8	11	1.5	14	5.2	25	2.5
Simple H.			1	.2	1	.04	8.9	5	1.0	1	.2	12	1.6	13	4.9	25	2.5
Simple M.							4.2	1	.2					2	.7	2	.2
Normal								1	.2								
Miscellaneous		15.3	71	14.4	379	15.1		95				41	5.6			41	4.1
Totals	2,008		492		2,500			510		500		732		268		1,000	
All forms H.	1,504	74.9	355	72.2	1,859	74.3						583	79.6	204	76.1	787	78.7
All forms M.	304	15.2	86	17.5	390	15.6						111	15.1	60	22.3	171	17.1
Mixed As.	57	2.8	15	3.1	72	2.9						31	4.2	4	1.5	55	5.5
Miscellaneous	143	7.1	36	7.3	179	7.1										54	5.4
One-eye H. / One-eye M.	51																12.0
One-eye H. / One-eye Mixed	71																23.0
One-eye M. / One-eye Mixed	21																19.0

That the fact that there are men who are willing to publish figures so at variance with the figures of other workers along the same line shows that there should be a standard to which we all ought to try to conform.

That it would be a good plan for every man doing refraction work to tabulate as large a number of his routine cases as convenient, and, if he is satisfied with his own work, publish the results to the end that a definite standard may be reached the sooner.

As an object lesson I would suggest a glance at the table wherein the results of four men's work, 4,500 cases in all, is made into one curve and compared with that of the fifth.

I would suggest that especial attention be given to the classes of cases that may be called unstable. That cases showing deficient convergence or a pronounced lack of symmetry, both as to degree and angle, in the two eyes, all transition cases and such others as the observer's experience leads him to class among the unstable cases, should be subjected to unusual efforts, "third degree" methods or such other expedients as individual practice and patience may dictate. The assumption that the acceptance of a weak minus sphere indicates the true static condition should be made with especial care in these unstable cases.

In conclusion, let me emphasize the fact that all of these figures and all of the subject-matter of this paper are entirely apart from the question of correction of the defects and refer entirely to the estimation of the static refractive condition. There can be no truly scientific discussion of the remedy to these defects until such time as a standard be set. As above suggested, when a dozen men can refract a thousand cases and each one get approximately identical results, then it will be time to talk of a scientific system of prescribing.

THE BARANY TESTS.

Dr. H. H. Briggs, Asheville, N. C.

ANATOMY.

The internal ear consists of a membranous labyrinth enclosed in a bony capsule and comprises the vestibule, the three semicircular canals and the cochlea. The vestibule lies between the choclea in front and the semicircular canals behind. It lies internal to the upper and posterior portion of the inner wall of the tympanum and to the auditus, and external to the fundus of the internal auditory canal. It is ovoid in

shape, five to six millimeters long, three to four millimeters wide and four to five millimeters high, having a capacity of about one minim. It lies with its long axis antero-posteriorly, and has, opening into it, the five ends of the three semicircular canals, namely, the anterior vertical, posterior vertical, and horizontal. Each canal has a large or ampullated extremity and a small extremity. Each ampullated end opens separately into the vestibule, but the small ends of the superior and posterior vertical canals join, entering the vestibule in common; hence five instead of six openings. (Fig. 1.) Each canal describes about two-thirds of the circumference of a circle, the diameter of which is about seven or eight millimeters. The canals are about one millimeter in diameter, the ampullated end being about 2½ millimeters. Two of the canals, the anterior vertical and posterior vertical, stand vertically and at right angles to each other, while the lateral canal lies horizontally and is perpendicular to the plane of the other two. Thus the planes of the three canals represent the three dimensions of space, each being practically at right angles to the other two. (Fig. 2.) The anterior canal passes forward and outward, making an angle of about forty-five degrees with a median plane. The posterior canal passes backward and outward, making an angle of about forty-five degrees with the same plane, the planes of the two canals being, therefore, practically at right angles to each other. The horizontal canal passes forward and a little upward, varying from zero to thirty degrees from a horizontal plane. (Fig. 17.) Since the plane of each vertical canal makes an angle of forty-five degrees with the median plane, it is obvious that each anterior canal lies in a plane parallel to that of the posterior canal of the opposite side. The horizontal canals lie practically in the same plane, which as before stated, slants slightly upward.

The membranous labyrinth, filled with endolymph and surrounded with perilymph, lies within the osseous labyrinth. It consists of the saccule, utricle, and vestibular structures, by which they communicate with other parts of the membranous labyrinth. The saccule communicates with the scala media of the cochlea (ductus cochlearis) and indirectly with the utricle, while the latter communicates directly through five openings with the semicircular canals. The utricle, attached to the posterior part of the inner wall of the bony vestibule, is five millimeters long and contains the utricular branches of the vestibular nerve, covered with the highly specialized form of neuro-epithelium and known as the macula acustica. Similar structures are found in the ampullae of the semicircular canals and called crystica acustica. The crysta acustica and macula acustica contain a surface layer of so-called hair cells, which in the crysta acustica, is covered by a gelatinous substance known as

the ampulla. In the macula acustica of the utricle and saccule the gelatinous covering contains the small bodies known as otolyths. I wish to call special attention to the hair cells and otolyths as representing the nerve ends which are stimulated by the flow of endolymph and start the impulses maintaining our equilibrium and whose disturbance result in nystagmus, vertigo, and ataxia.

PHYSIOLOGY.

It would be proper to consider the cochlear branch of the auditory nerve as the auditory branch and the vestibular branch as that of equilibrium. The static labyrinth is probably the principal organ for maintaining equilibrium. In destruction of both labyrinths there is permanent impairment of equilibrium, causing the patient to walk with feet far apart laterally, which corresponds to the permanent, positive, Romberg test. The broad gait is adopted in order to counteract the lack of stability due to the destruction of the labyrinths. This lost function is partly compensated for by the so-called muscular, arthroidal, and taxtile senses, and the sense of sight; but these auxiliary sources of impulses perform the function of equilibrium vicariously, or what is more probable, there is a readjustment of the centers from which come the impulses controlling equilibrium, and a compensation results. By this compensation and under ordinary conditions deaf mutes whose labyrinths were destroyed in early childhood are able to maintain their equilibrium practically as well as normal individuals.

Flourens, in 1824, found that section of any one of the semicircular canals of pigeons causes uncontrollable movements of the head and eyes in the plane of the canal experimented upon. Breuer, in 1888, showed that irritation, either electric, thermal, or chemical, of the canals without section, was sufficient to produce the same phenomenon that Flourens produced by section. Professor Ewald, of Strasburg, in 1892, corroborated the findings of Flourens, Breuer, and others, and established a relationship between the endolymph movements in the different canals and the character and direction of nystagmus. (Ewald in 92.) He exposed the semicircular canals of a pigeon and made two small openings in the bony wall of the external canal without injuring the membranous canal. (Fig. 18.) Into the opening farthest from the ampulla was driven a piece of lead which completely obliterated the membranous canal, thereby preventing any flow of endolymph at that point. Into the other opening, which lay between the plugged opening and the ampulla, was fitted a small penumatic hammer, the end of which barely touched the membranous canal. The hammer was attached by means of a rubber tube to a rubber bulb which, when compressed, would

produce pressure on the endolymph, forcing it toward the ampulla. Relaxing the bulb caused suction and a flow away from the ampulla. In this experiment the following was observed: In the right horizontal canal, compressing the bulb causing the flow of endolymph toward the ampulla, which lies in front part of canal, caused a strong movement of the head and eyes to the left and in the plane of the canal. On releasing the bulb, causing suction, the reverse was true, the endolymph moving from the utricle through the ampulla and toward the small end of the canal, causing a return of the head and eyes to the normal position and always in the plane of the canal. The experiment upon the left horizontal canal gave similar movements of the head and eyes except in the reverse directions. Experimenting on the right posterior vertical canal, compression was followed by gradual movement of the head and eyes exactly in the plane of this canal and in the direction of its ampulla, which is at its postero-external end, namely, to the right. Suction caused movements in the same plane but in the opposite direction. The result of the reactions on the anterior vertical canals was similar to those of the posterior, varying in accordance with their different planes. These experiments established the following:

1. Irritation of any single canal produced a nystagmus in a plane parallel with the plane of the canal.

2. There is a constant relation between the direction of the endolymph movement in the canal and the direction of the resulting nystagmus.

3. Reversing the endolymph movements in any canal reverses the direction of the induced nystagmus.

METHODS OF EXAMINATION.

Functional examination of the static labyrinth may be made: first, by noting the signs and symptoms which indicate a loss, a diminution or an increase in the normal impulses from the static labyrinth, known as decomposition symptoms, or its condition may be determined by physiological stimulation of the end organs in the semicircular canals. As an objective sign, may be mentioned spontaneous nystagmus and reaction movements. The subjective symptoms are sensation of rotation of surrounding objects and of the body, and often nausea and vomiting. We shall consider in detail, however, only those reflex movements in the eye muscles known as nystagmus, and characterized by an involuntary rapid, rhythmic movement of the eyes, and may be lateral, vertical, rotary, or mixed, i. e., a compound or resultant of any two or more of

their movements. But we are concerned here with vestibular nystagmus only, which may be differentiated from nystagmus of other origin in the following ways:

1. The nystagmus must be composed of a slow movement of the eye in one direction and a quick movement in the opposite direction.

2. It is increased usually in rapidity and always in length of excursion when the eyes are voluntarily turned in the direction of the quick component.

3. It diminishes or ceases altogether when the eyes are turned voluntarily in the direction of the slow nystagmic movement.

The above are the characteristic nystagmic movements of vestibular origin whether produced experimentally or occurring in the course of a labyrinthitis. Vestibular nystagmus may be horizontal, oblique, vertical or rotary.

In a normal labyrinth nystagmus may be induced in the following ways:

1. By irrigating the ear with cold or hot water (caloric test).
2. By rotation (rotation test).
3. By the galvanic current (galvanic test).
4. By compression or aspiration of the air in the auditory canal (fistula test).

The actual manner of stimulation of the end organs in the semicircular canals is the same in all the four methods and consists in causing movement of endolymph, resulting in a displacement of the cupola which in turn drags on the hair cells. In the rotation test the endolymph is first set in relative motion by its inertia, and later by its momentum. In the caloric test the endolymph flow is caused by a difference in the specific gravity of the cold and hot portions on the principle of the thermo-syphon. In the galvanic test the endolymph movement is supposed to be the result of kataphoresis. In the fistula test the endolymph is displaced by air pressure through a fistula in the bony canal. These tests give both a qualitative and quantitative knowledge of the function of the vestibule end organs. The qualitative test informs us which labyrinth and which canal or canals are in a condition of irritation or depression. By comparison with a normal labyrinth or with a similar normal canal of other ear, a quantitative test is possible.

During rotation a person exhibits nystagmus in the direction in which he is turned, because by its inertia the endolymph flow is in the opposite direction. Arrest of rotation is immediately followed by nystagmus in the opposite direction, because when the motion of the bony canal is checked the endolymph by its own momentum, continues to flow in the direction of the turning.

CALORIC TEST.

It has long been known by otologists that irrigation of the ear caused nystagmus, vertigo and disturbance of equilibrium. In 1868 Schmiedekam and Hensen found that cold water poured into the ear caused vertigo and vomiting. Cohn and Urbantschitsch discovered that cold and hot water poured into the ear caused nystagmus, but Barany recently made a systematic study of these caloric reactions and formulated from it a valuable means of determining the function of the semicircular canals. Barany found that cold water in the ear, the head being in an upright position, caused a combined rotary and horizontal nystagmus toward the opposite ear, and that if hot water is used there results a combined rotary and horizontal nystagmus toward the irrigated ear. If the water temperature is below that of the body, say at 86° F. or lower, the following reactions occur:

1. Rotary nystagmus with the quick movement away from the irrigated ear.
2. The patient complains of subjective vertigo.
3. Exhibits marked disturbance of equilibrium.

If water of body temperature is used there is no resulting nystagmus. If hot water is used at 110° F. the same phenomena are observed except that the duration of the nystagmus is toward the irrigated ear and the ataxia is changed according to the laws governing the relation of the nystagmus present. If the head is rotated forward 180 degrees, (the vertex pointing downward) the conditions are reversed, cold water causing a nystagmus to the irrigated ear and warm water away from the irrigated ear. It was found that the temperature of the water and the position of the head determined the direction and character of caloric nystagmus. If cold or hot water causes no nystagmus, the labyrinth on that side has impaired function. Barany concluded (Fig. 19) that the reaction is due to the endolymph movement produced by the difference in specific gravity of the cold and warm portions of the endolymph, the cold water causing the endolymph to fall, and hot water causing it to rise in the semicircular canal, that these reactions are constant and have a definite relation to the temperature of the water.

Cold water in the ear would cool the ampullar ends of the horizontal and the anterior vertical canals first. With the head in the upright position the horizontal canal lies in the horizontal plane and there would be no movement of its endolymph, but the sudden cooling of the ampullar ends of the anterior vertical canal would cause a strong endolymph movement toward its ampulla, and this experiment in the normal ear causes a rotary nystagmus toward the opposite side in exact accord with

Ewald's experiments. If the patient is now suddenly inverted, the head pointing directly downward, causing the cool portion of endolymph to flow in the opposite direction, the nystagmus is reversed and is toward the irrigated ear.

When the static labyrinth has been destroyed either surgically or by disease, there is no reaction following the application of heat or cold. The caloric test, therefore, is invaluable in determining whether a nystagmus is vestibular or of cerebellar origin.

ROTATION.

When a person with normal internal ears, seated in an upright position is turned about ten times within forty to forty-five seconds, he experiences vertigo and shows a nystagmus in the opposite direction from that in which he is turned. If he be turned to the left (Fig. 3) the endolymph in the right horizontal canal at first lags behind, due to its inertia, and moves away from the ampulla, causing a nystagmus to the left. In the left ear the endolymph lagging behind is flowing toward the ampulla, resulting also in a nystagmus to the left. At the end of ten turns (Fig. 4) the endolymph has overtaken the speed of the canal, and when the rotation is suddenly stopped the endolymph by its momentum continues to flow in the right ear toward the ampulla and in the left ear away from the ampulla, both of which causes a nystagmus in accordance to Ewald's experiments to the right or in the opposite direction to the rotation. It is obvious that in turning about a vertical axis the horizontal canals only will be influenced, since endolymph in the vertical canals would not be set in motion; consequently there results in this position a horizontal lateral nystagmus in the plane of the horizontal canals and opposite to the direction of the turning. If the head is turned forward ninety degrees and the face turned to the right shoulder, the right superior and the left posterior semicircular canals are brought in parallel horizontal planes (Fig. 8). Rotation in this position to the left causes an endolymph flow away from the ampulla in the right vertical canal and toward the ampulla in the left posterior canal and gives a nystagmus to the right, while in similar position rotation to the right causes a nystagmus to the left. The left anterior and right posterior canals may be similarly tested by so placing the head that their planes may become horizontal.

The nystagmus during rotation is in the direction of the turning. The after nystagmus is in the opposite direction to that of the rotation.

If each labyrinth is normal the duration of the nystagmus in each will be practically the same, lasting 20 to 40 seconds. The time in different individuals will vary greatly, but the duration of the nystagmus for the two sides will vary not more than three seconds.

Now if the right labyrinth is non-functionating, turning to the left will cause a short nystagmus, because in turning to the left the endolymph flow is toward the utricle, which we have learned is a much stronger stimulus than away from the utricle. In the right ear, the stronger of the two, the stimulus is entirely wanting. The nystgamus to the right while turning to the left is 5 to 10 seconds, while the nystagmus to the left on turning to the right is 20 to 25 seconds. This difference should be more than doubled to be of great diagnostic value. (Figs. 6 and 7.)

The symptom complex of vestibular irritation is nystagmus, vertigo and ataxia. Their relations may be stated as follows:

1. Spontaneous vertigo of vestibular origin is always accompanied by some degree of spontaneous vestibular nystagmus, and is always increased when the eyes are voluntarily turned in the direction of the quick nystagmic movement.

2. Vestibular ataxia is always accompanied by nystagmus, and is always influenced by the position of the head.

3. A person exhibiting vestibular nystagmus tends to move within the plane of the nystagmus, and to fall in the direction opposite to the quick nystagmic movement.

PATIENT, J. G. W.

Past history. When a child, had whooping cough and measles. Five years ago had la grippe, followed by deafness. No dizziness, no discharge. Several years ago had slight stomach trouble. No other illness.

Family history. Father living, sixty-five years of age, healthy. Mother died of dropsy. Has three brothers and two sisters. Lost two brothers and two sisters who died in infancy, cause unknown. Patient is married, has two children in good health. Never lost any children.

Present history. About March 1 began having ringing and pain in right ear, lasting two days. When ringing in right ear ceased began having roaring in left ear, which after two weeks changed in character to intermittent ringing, which patient describes as being like pulse-beat. When left ear began troubling, began to have dizziness, slight in character, but gradually growing worse. Was unable to walk or stand; fell, but caught himself four or five times. No definite direction. No nausea or vomiting. After first visit to office, March 6, began to have to be in bed more or less for three or four days, when he was then confined to bed all the time for about four weeks. April 1, had severe headache over frontal region, extending back over top of head as far as, but not involving, the occipital region. Pain was so severe

patient says Dr. Smith gave several injections. Pain lasted from 6 a. m. to 11 p. m. Only headache he has had except just slight amount. In two weeks after beginning of illness lost about 15 pounds; thinks he has regained some of this.

April 14, showed no response to both caloric and whirling tests of vestibular apparatus. Showed spontaneous rotary nystagmus when looking well to the left, and none or very slight on looking to the right. Felt slight dizziness on looking to the left.

April 16, patient returned to office stating that on previous day he had felt better, but today feels more dizziness. Turning to right, no nystagmus. Turning to left, slight lateral nystagmus to right.

The program ended, the election of a Chairman for next year was taken up, and Dr. John W. MacConnell, of Davidson, was unanimously elected Chairman, with Dr. J. P. Matheson, of Charlotte, as Secretary.

The meeting then adjourned.

NORTH CARCLINA HOSPITALS

Drs. J. T. Burrus and H. W. McCain, High Point, N. C.

Dr. J. T. Burrus: In the first place we wish to thank the superintendents and the doctors connected with the various institutions over the State of North Carolina and the heads of the different hospitals in the State for their hearty coöperation, which has enabled us to secure the data that we have this evening. The courtesy that we have received at the hands of every one has been all and more than we could ask for. Many of the institutions have not responded to the repeated requests for information and for photographs, but in the main we have been able to get them, and only one institution in the State of North Carolina has refused to give us permission to throw the photograph of the institution on the screen or to give us information about the class of work that is being done by this institution. We have visited all of these institutions with a very few exceptions, and we find that the equipment and the work done in these hospitals will compare favorably with the hospitals of the larger cities. If the physicians of North Carolina would recognize what is being done in our institutions here, the class of work and the result of this work, it would be rare that a case would be referred out of North Carolina for treatment. The class of work done covers the entire catalogue and the mortality is lower than that of our sister state, Virginia. We recognize the importance of every hospital having its staff because we believe when hospitals maintain a staff they are doing better work than the open hospital. It is hoped at this meeting, or soon thereafter, we may organize the hospitals of North Carolina, which is the first step toward standardizing these institutions. It is the duty of the State of North Carolina to see that the physicians who practice medicine in North Carolina have certain training, that they have certain qualifications, that they have certain equipment, which must come from a recognized institution. If this is true, and we all know it is, is it not true that the nurses of North Carolina should come from institutions that have a recognized equipment and a recognized training for these young women that are to take the lives of the people of our Commonwealth into their hands?

HIGHLAND HOSPITAL
ASHEVILLE, N. C.

ASHEVILLE, N. C.

Asheville Mission Hospital.

Established 1885.
Beds, 82.
Cases admitted: Medical, 392; surgical, 962. Total, 1,354.
Owned by Episcopal Church Mission Board, Mrs. D. C. Waddell.
Staff, Dr. Fletcher, chief, and sixteen associates, all taken from Asheville.

Meriwether Hospital.

Beds, 65.
Dr. E. B. Glenn, chief of medicine; Dr. C. P. Ambler, assistant.
Cases admitted: Surgical, 727; medical, 208. Total, 935.

Highland Hospital.

Established 1904.
Beds, 75.
Cases admitted, 105.
Owned by stock company.
Dr. R. S. Carroll, Medical Director.

Winyah Sanatorium.

Established 1888.
Beds, 100.
Owned by Drs. VonRuck and VonRuck.
Staff, Dr. Sylvio VonRuck, Medical Director, and four assistants.

BILTMORE, N. C.

Clarence Barker Memorial Hospital.

Established 1899.
Beds, 50.
Owned by stock company.
Rev. R. R. Swope, D.D., President.
Dr. S. W. Battle, Medical Director.

Asheville-Biltmore Sanatorium.

Unable to obtain report.

BLACK MOUNTAIN, N. C.

Fellowship Sanatorium "For Tuberculosis."

Established 1905.
Beds, 30.
Cases admitted, 40.
Dr. I. J. Archer, Medical Director.

Cragmont Sanatorium.

Established 1906.
Beds, 25.
Cases admitted, 51.
Dr. J. J. Wicker, Superintendent.

Pine Sanatorium.

Unable to obtain report.

BURLINGTON, N. C.

The Rainey Hospital.

Established 1916.
Beds, 25.
Owned by Dr. J. R. Parker, Chief Surgeon.
Staff, Dr. J. R. Parker and two assistants.
Opened only six months ago.

CHARLOTTE, N. C.

The Brenizer Sanatorium.

Established 1916.
Beds, 25.
Surgical cases, 380.
Owned and operated by Dr. Addison Brenizer.

Mercy Hospital.

Established 1906.
Beds, 40.
Cases admitted: Medical, 159; surgical, 196. Total, 355.
Owned by Sisters of Mercy.
Staff, twelve physicians of Charlotte.

Presbyterian Hospital.

Established 1903.
Beds, 53.
Cases admitted: Medical, 410; surgical, 1,090. Total, 1,500.
Owned by Presbyterian churches of Charlotte.
Staff, about twenty physicians of Charlotte.

The Crowell Sanatorium.

Established 1902.
Beds, 12.
Cases admitted, 110 (neurological).
Owned and operated by Dr. S. M. Crowell.

Charlotte Sanatorium.

Established 1909.
Beds, 50.
Cases admitted: Medical, 1,100; surgical, 800. Total, 1,900.
Owned by stock company.
Operated by Dr. A. J. Crowell, assisted by fourteen physicians and surgeons.

WINYAH SANITARIUM ASHVILLE, N. C.

St. Peter's Hospital.

Established—oldest in the State.
Beds, 40.
Cases admitted, 750.
Owned by St. Peter's Church (Episcopal).
Staff—open to any reputable physician in Charlotte.

Tranquil Park Sanatorium.

Established 1916.
Beds, 25 (neurological).
Owned by stock company.
Staff—Dr. J. Q. Myers and Dr. J. P. Monroe.

Good Samaritan Hospital (for Colored People).

Established 1888.
Beds, 20.
Cases admitted: Medical, 49; surgical, 223. Total, 272.
Owned by Episcopal Church of North Carolina.
Staff—Dr. C. M. Strong, chief, with six physicians and surgeons of Charlotte.

CONCORD, N. C.

Concord Hospital.

Established 1913.
Beds, 25.
Cases admitted: Medical, 50; surgical, 250. Total, 300.
Drs. J. W. Wallace, J. A. Patterson, and McFayden.
Staff—Drs. McFayden, Wallace, and Patterson.

CANTON, N. C.

Pegram Sanatorium.

Established 1916.
Beds, 15.
Cases, not given.
Owned and operated by Dr. R. W. Q. Pegram.

DURHAM, N. C.

Watts Hospital.

Established—
Beds, 101.
Cases admitted, 1,254.
Medical Residents—Drs. C. D. Hill and T. D. Kearns.
Staff—any reputable physician of Durham.

ELIZABETH CITY, N. C.

Elizabeth City Hospital.

Established 1915.
Beds, 50.
Cases admitted: Medical, 9; surgical, 175. Total, 184.
Owned by stock company.
Staff—Dr. Saliba, surgeon; Dr. McMullan, medical; Dr. Fearing, laboratory.

FAYETTEVILLE, N. C.

Highsmith Hospital.

Established—
Beds, 75.
Cases admitted: Medical, 320; surgical, 643. Total, 963.
Owned by stock company.
Staff—Dr. J. F. Highsmith, chief; Drs. Pittman and Greenwood, assistants.

Cumberland General Hospital.

Established 1913.
Beds, 25.
Owned by stock company.
Dr. T. M. West, Chief Surgeon.

FRANKLIN, N. C.

Lyle's Hospital.

Unable to obtain report.

GASTONIA, N. C.

City Hospital.

Established 1908.
Beds, 35.
Cases admitted: Medical, 50; surgical, 500. Total, 550.
Owned and operated by Drs. L. N. Glenn and J. M. Sloan.

GREENSBORO, N. C.

Glenwood Park Sanatorium.

Established 1906.
Beds, 30.
Cases, 149 (neurological).
Owned by stock company.
Staff—Dr. C. W. Ashworth, chief physician; Dr. Young, assistant.

Reaves Infirmary.

Surgical cases, 300.
Owned and operated by Drs. W. P. Reaves and Reaves.
(Eye, ear, nose, and throat.)

Williams-Oliver Sanatorium.

Established 1908.
Neurological.
Beds, 16.
Medical cases admitted, 98.
Owned and operated by Drs. B. B. Williams and A. S. Oliver.

J. W. Long Sanatorium.

Established 1917.
Beds, 50.

THE RAINEY HOSPITAL
BURLINGTON, N. C.

THE CROWELL SANATORIUM
CHARLOTTE, N. C.

GOOD SAMARITAN HOSPITAL
CHARLOTTE, N. C.

TRANQUIL PARK SANITARIUM
CHARLOTTE, N. C.

WATTS HOSPITAL
DURHAM N C

THE ELIZABETH CITY HOSPITAL

HIGH SMITH HOSPITAL
FAYETTEVILLE, N.C.

GLENWOOD PARK SANITARIUM
GREENSBORO, N. C.

REAVES INFIRMARY
GREENSBORO N C

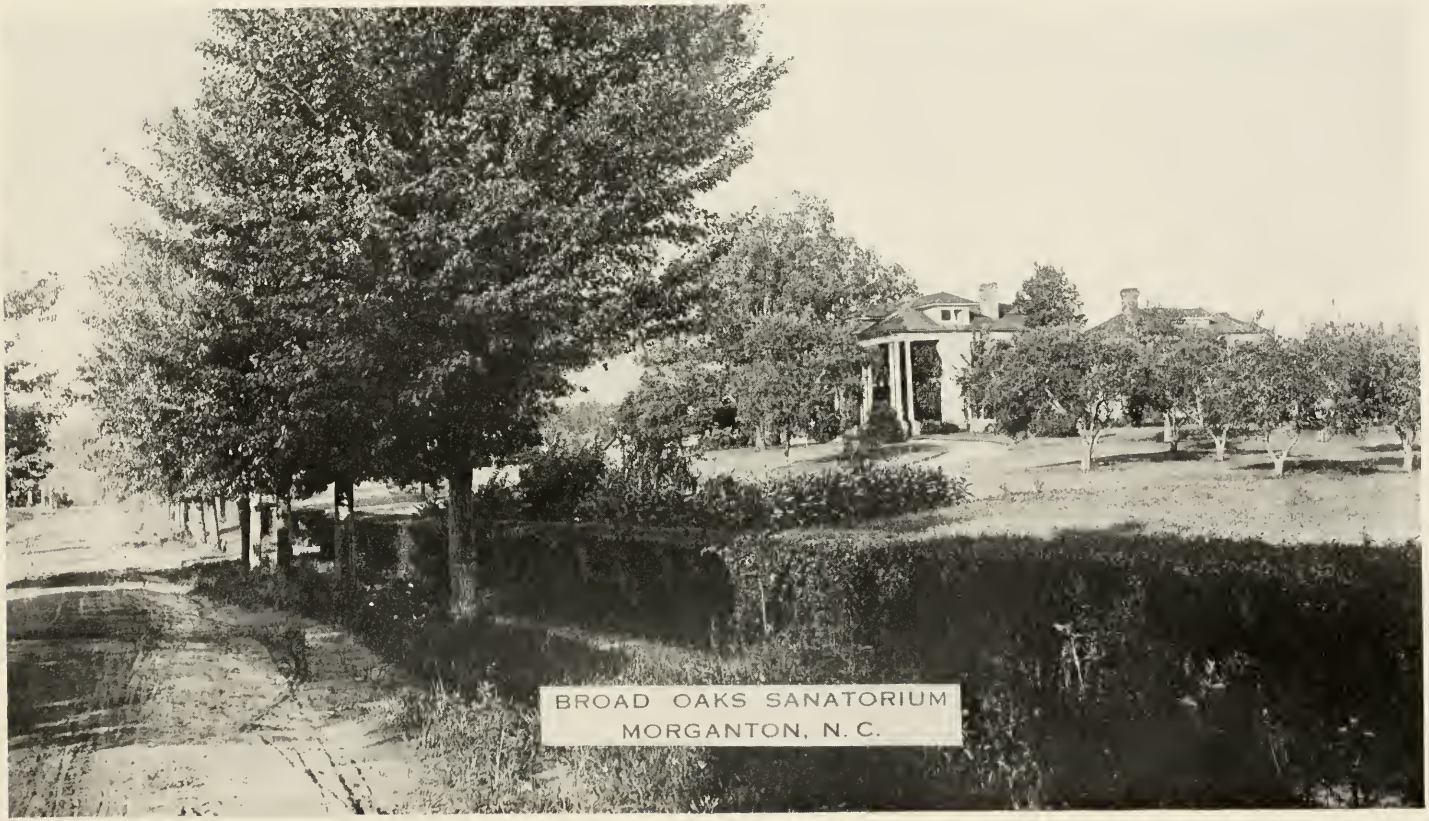
DR. MORRIS' HOSPITAL
HENDERSONVILLE, N. C.

RICHARD BAKER HOSPITAL
HICKORY, N. C.

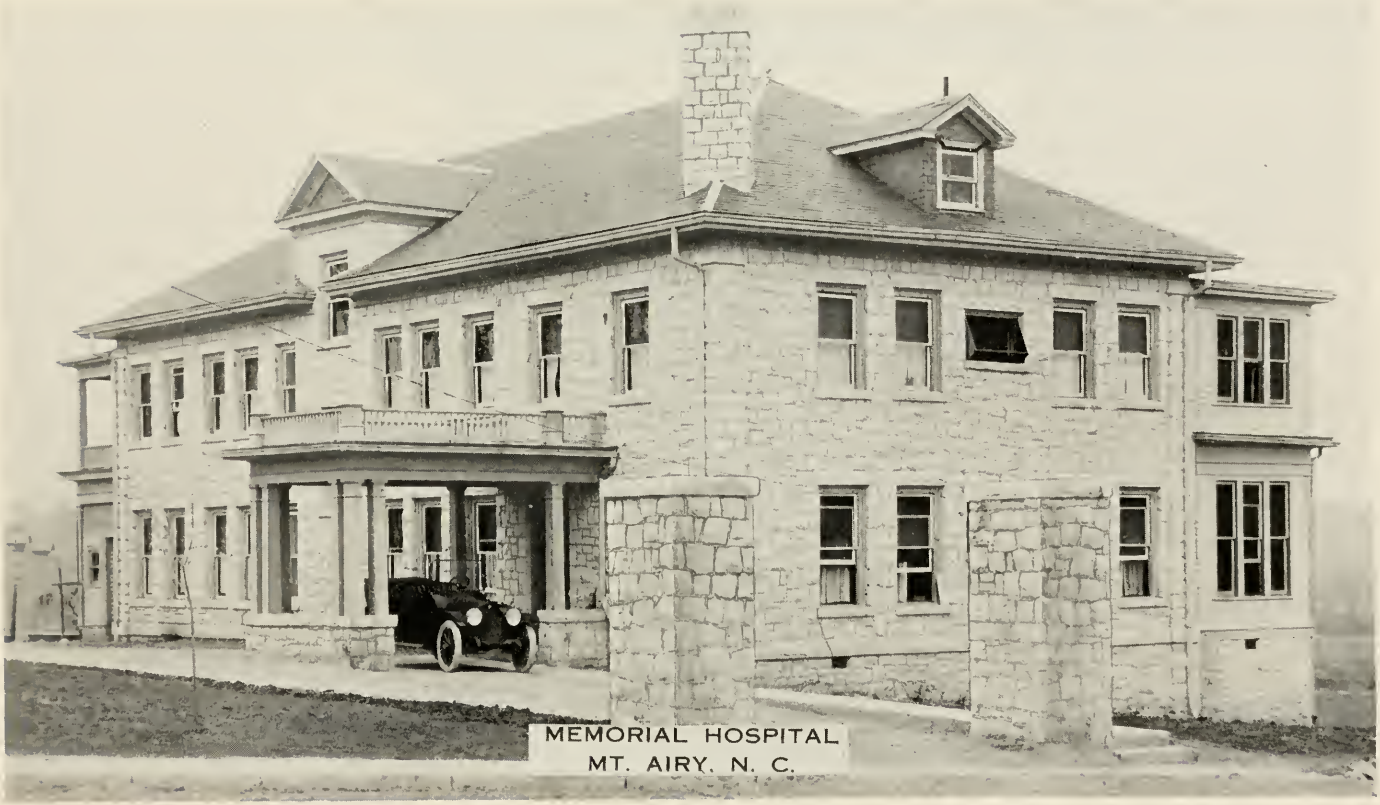
HIGH POINT HOSPITAL
SHOWING
PROPOSED ADDITION

LINCOLN HOSPITAL
LINCOLNTON, N. C.

MOREHEAD CITY HOSPITAL
MOREHEAD CITY, N. C.


BROAD OAKS SANATORIUM
MORGANTON, N. C.

GRACE HOSPITAL
MORGANTON, N. C



MEMORIAL HOSPITAL
MT. AIRY, N. C.

REX HOSPITAL
RALEIGH, N. C.

ST. AGNES' HOSPITAL
RALEIGH, N. C.

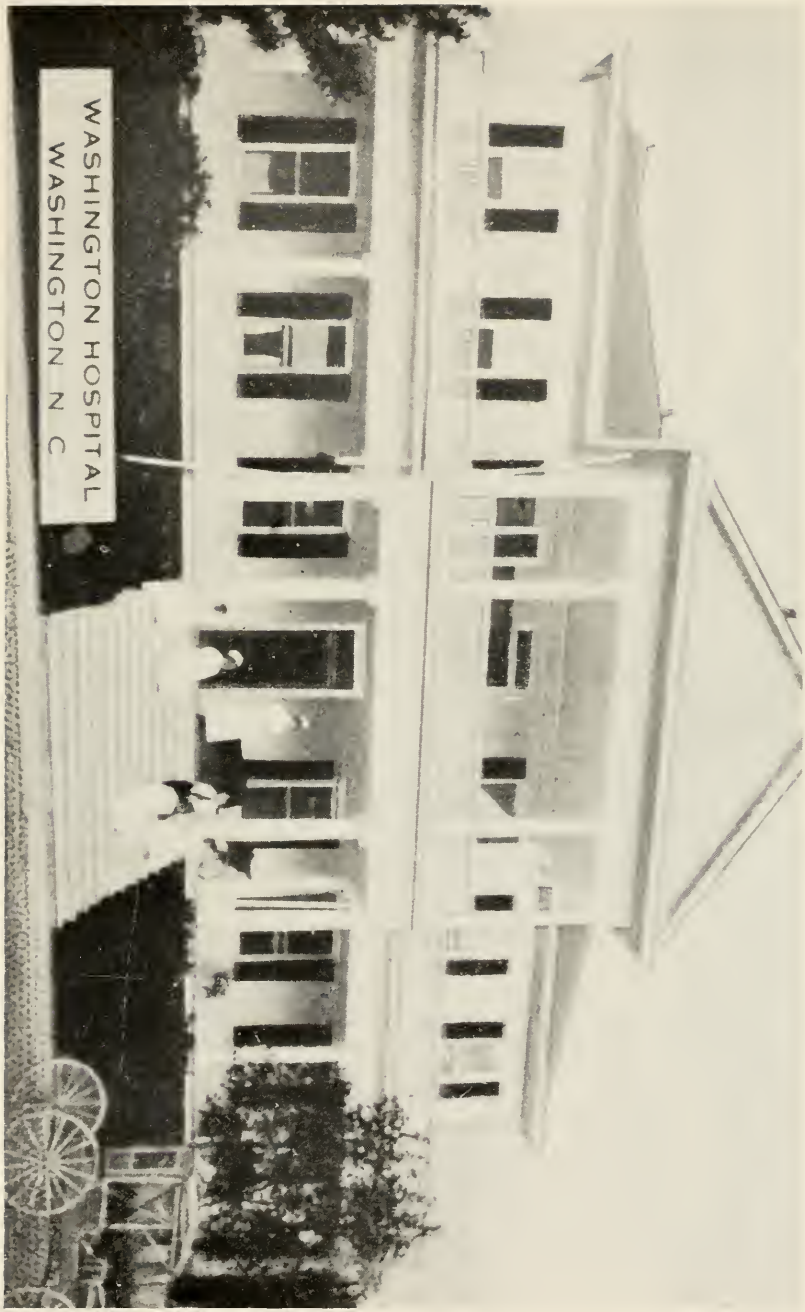
ROCKY MOUNT SANITARIUM

THE RUTHERFORD HOSPITAL
RUTHERFORDTON, N. C.

NORTH CAROLINA SANATORIUM
SANATORIUM, N. C.

CENTRAL CAROLINA HOSPITAL
SANFORD N. C

FOWEL MEMORIAL HOSPITAL
WASHINGTON, N. C.


WASHINGTON HOSPITAL
WASHINGTON N C

ASHEVILLE-BILTMORE SANITARIUM
ASHEVILLE, N. C.

ASHEVILLE MISSION HOSPITAL
ASHEVILLE N C

BILTMORE HOSPITAL

THE BRENIZER SANATORIUM
CHARLOTTE N. C

CHARLOTTE SANATORIUM
CHARLOTTE N. C.

MERCY HOSPITAL
CHARLOTTE, N. C.

PRESBYTERIAN HOSPITAL
CHARLOTTE N C.

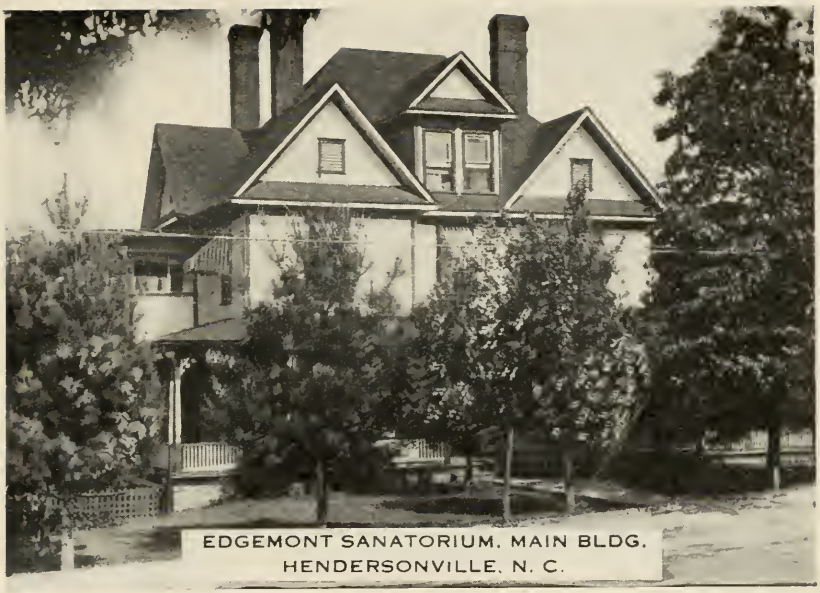
ST. PETER'S HOSPITAL
CHARLOTTE. N C.

DR. WILLIAMS SPICER
GOLDSBORO, N. C.

THE WILLIAMS-OLIVER SANITARIUM
GREENSBORO N C

ST LEO'S HOSPITAL
GREENSBORO N C

HAMLET HOSPITAL
HAMLET, N.C.



EDGEMONT SANATORIUM, MAIN BLDG.
HENDERSONVILLE, N. C.

HIGHLAND CAMP SANATORIUM

ST LUKE'S HOSPITAL
NEWBERN, N C.

St. Leo's Hospital.

Established 1906.
Beds, 81.
Cases admitted: Medical, 262; surgical, 816. Total, 1,078.
Owned by Sisters of Charity.
Staff—any reputable local physician or surgeon.

GOLDSBORO, N. C.

Goldsboro City Hospital.

Established 1892.
Beds, 40.
Cases admitted: Medical, 141; surgical, 232. Total, 373.
Owned by city and county.
Staff—eight physicians in Goldsboro.

Spicer's Sanatorium.

Established 1914.
Beds, 25.
Cases admitted: Medical, 62; surgical, 259. Total, 321.
Owned by Williams and Spicer, M.D.
Staff—Drs. Williams and R. W. Spicer.

HENDERSONVILLE, N. C.

Edgemont Sanatorium.

Established 1911.
Beds, 24.
Cases admitted, 26 (Tubercular).
Owned and operated by Dr. W. R. Kirk.

Dr. Morse's Sanatorium.

Established 1908.
Beds, 18.
Cases admitted, medical, 42 (Tubercular).
Owned and operated by Dr. L. B. Morse.

Patton Memorial Hospital.

Unable to obtain report.

HIGH POINT, N. C.

High Point Hospital.

Established 1911.
Beds, 45.
Cases admitted: Medical, 158; surgical, 510. Total, 668.
Owned by Drs. J. T. Burrus, H. W. McCain and D. A. Stanton.
Staff—Drs. J. T. Burrus, H. W. McCain and D. A. Stanton.

HIGHLAND, N. C.

Highland Camp Sanatorium.

Established 1909.
Beds, 50.
Cases, not given.
Owned and operated by Dr. Mary E. Lapham.

HICKORY, N. C.

Richard Baker Hospital.

Established 1911.
Beds, 25.
Cases admitted: Medical, 65; surgical, 265. Total, 330.
Owned by J. H. Shuford, M. D.
Staff—Dr. J. H. Shuford, chief; Dr. L. F. Stevenson, associate.

HAMLET, N. C.

Hamlet Hospital.

Established 1910.
Beds, 72.
Cases admitted: Medical, 30; surgical, 300. Total, 330.
Owned by Dr. W. D. James.
Staff—Drs. James, H. F. Kinsman, and Will Terry.

KINSTON, N. C.

Parrott Memorial Hospital.

Established 1906.
Beds, 18.
Cases, not given, (several hundred).
Owned and operated by Drs. James M. and A. D. Parrott.

LINCOLNTON, N. C.

Lincoln Hospital.

Established 1907.
Beds, 18.
Cases admitted: Medical, 30; surgical, 218. Total, 248.
Owned and operated by Dr. L. A. Crowell.

LUMBERTON, N. C.

Thompson Hospital.

Unable to obtain report.

LENOIR, N. C.

Foot Hills Sanatorium.

Unable to obtain report.

LA ROCKY MOUNT HOSPITAL
ROCKY MOUNT N C

THOMASVILLE BAPTIST INFIRMARY

MOUNT AIRY, N. C.

Martin Memorial Hospital.

Established 1915.
Beds, 35.
Cases in the last ten months, 175.
Owned by Dr. Moir S. Martin.
Staff—Dr. Moir S. Martin, chief; Dr. G. T. Divers, associate.

MOREHEAD CITY, N. C.

Morehead City Hospital.

Established 1911.
Beds, 25.
Cases admitted: Medical, 37; surgical, 78. Total, 115.
Owned by stock company.
Staff—Dr. Ben F. Royall, chief; Dr. W. M. Willis, associate.

MAXTON, N. C.

Maxton Hospital.

Unable to obtain report.

MORGANTON, N. C.

State Hospital (For Insane).

Established 1875.
Capacity, 1,350.
During the last twelve months 296 cases were admitted.
Dr. John McCampbell, superintendent.

Grace Hospital.

Established 1906.
Beds, 30.
Cases admitted: Medical, 87; surgical, 165. Total, 252.
Owned by trust company.
Staff—Dr. E. W. Phifer, chief, with any reputable local physician.

Broadoaks Sanatorium.

Established 1901.
Beds, 50.
Cases admitted, 95.
Owned by Dr. Isaac M. Taylor.
Staff—Drs. Isaac M. Taylor and James W. Vernon.
Limited to nervous and mental cases, and addiction.

NEW BERN, N. C.

St. Luke's Hospital.

Established 1915.
Beds, 35.
Cases admitted: Medical, 252; surgical, 428. Total, 680.
Owned by Drs. R. Duval Jones and Joseph F. Patterson.
Staff—Drs. R. Duval Jones, Joseph F. Patterson, N. M. Gibbs, Raymond Pollock and James Howard.

Fairview Hospital.

Established 1913.
Beds, 30.
Cases admitted: Medical, 212; surgical, 453. Total, 665.
Owned by Dr. George A. Caton.
Staff—Dr. G. A. Caton, chief; Drs. H. M. Bonner, R. S. Primrose and R. N. Duffy, assistants.

RALEIGH, N. C.

State Hospital (For Insane).

Established 1856.
Capacity, 1,050.
Dr. Albert Anderson, superintendent and chief physician.
During the last twelve months 287 cases were admitted.

Rex Hospital.

Established 1878.
Beds, 63.
Cases admitted: Medical, 390; surgical, 544. Total, 934.
Owned by the City of Raleigh.
Staff—any reputable physician of Raleigh.

St. Agnes Hospital (For Colored).

Established 1896.
Beds, 85.
Owned by St. Augustine School and Episcopal Church.
Cases, not given.
Dr. Hubert A. Royster, chief surgeon.

RUTHERFORDTON, N. C.

Rutherford Hospital.

Established 1906.
Beds, 72.
Cases admitted: Medical, 66; surgical, 611. Total, 677.
Owned and operated by Drs. Henry Norris and M. H. Biggs.

ANSON SANATORIUM
WADESBORO, N. C.

THE COLLEGE HOSPITAL
WAKE FOREST, N. C.

ROANOKE RAPIDS, N. C.

Roanoke Rapids Hospital.

Established 1912.
Beds, 16.
Cases admitted: Medical, 40; surgical, 169. Total, 209.
Owned by stock company.
Staff—Local physicians.

Park View Hospital.

Established 1914.
Beds, 35.
Medical cases, 257; surgical, 308.
Owned by stock company.
Staff—Drs. Boice and Willis.

ROCKY MOUNT, N. C.

Rocky Mount Sanatarium.

Established ———
Beds, 40.
Cases admitted: Medical, 131; surgical, 381. Total, 512.
Owned by Drs. L. W. Kornegay, J. L. Lane and S. W. Staley.

SOUTH ROCKY MOUNT, N. C.

Atlantic Coast Line Hospital.

Established 1900.
Beds, 30.
Cases, not given.
Owned by Atlantic Coast Line Railroad company.
Staff—Drs. G. G. Thomas, A. C. McCall, McRay and R. S. Clinton.

SANATORIUM, N. C.

North Carolina Sanatorium for Tuberculosis.

Capacity, 135.
During the last twelve months 314 cases were admitted.
Dr. L. B. McBrayer, superintendent; Dr. P. P. McCain, assistant superintendent.

SANFORD, N. C.

Central Carolina Hospital.

Established 1906.
Beds, 25.
Cases admitted: Medical, 65; surgical, 162. Total, 227.
Owned by W. A. Ray, F. M. Ray and E. R. Hatfield.
Staff—Drs. W. A. and J. P. Monroe, Lynn McIver, M. R. Gibson, and C. L. Scott.

STATESVILLE, N. C.

Long's Sanatorium.

Established 1907.
Beds, 50.
Cases admitted: Medical, 486; surgical, 872. Total, 1,358.
Owned by Henry F. Long, M. D.
Staff—Dr. H. F. Long, chief; Drs. James W. Davis and R. A. Campbell, associates.

Billingsley Hospital.

Unable to get report.

SALISBURY, N. C.

Whitehead-Stokes Sanatorium.

Refused.

Gibson Hospital.

Established 1916.
Beds, 10.
Owned and operated by Dr. L. O. Gibson.
Cases, not given.

TARBORO, N. C.

Edgecombe General Hospital.

Established 1916.
Beds, 50.
Cases, not given.
Owned by stock company.
Staff—All reputable physicians of Tarboro.

THOMASVILLE, N. C.

Infirmary Thomasville Baptist Orphanage.

Established ————
Beds, 25.
Operated by Orphanage.
Dr. J. E. Hobgood, physician and medical director; Dr. J. T. Burrus, surgeon.

WASHINGTON, N. C.

Washington Hospital.

Established 1905.
Beds, 35.
Cases admitted: Medical, 78; surgical, 1,120. Total, 1,198.
Owned and operated by Drs. D. T. and Joshua Tayloe.

S. R. Fowle Memorial Hospital.

Established 1904.
Beds, 40.
Cases admitted: Medical, 142; surgical, 228. Total, 370.
Owned by stock company.
Staff—Seven local physicians.

TANKERSLY'S HOSPITAL
WILMINGTON, N. C.

JAMES WALKER MEMORIAL HOSPITAL
WILMINGTON, N. C.

WINSTON-SALEM, N. C.

City Hospital.

Established 1914.
Beds, 85.
Cases admitted: Medical, 509; surgical, 928. Total, 1,437.
Owned by city.
Staff——All city physicians.

WILKESBORO, N. C.

White's Hospital.

Established ———
Beds, 5.
Cases admitted, surgical, 42.
Owned by Dr. J. W. White.

WAKE FOREST, N. C.

Infirmary for College.

Established ———
Beds, 10.
Cases admitted: Medical, 20; surgical, 31. Total, 51.
Staff—Dr. George Aiken, surgeon and staff of assistants.
Owned by Wake Forest College.

WADESBORO, N. C.

Anson Sanatorium.

Established 1816.
Beds, 30.
Cases admitted: Medical, 37; surgical, 47. Total, 84.
Owned by board of trustees.
Staff—Drs. E. S. Ashe, R. D. Rass, and J. E. Hart.

WILMINGTON, N. C.

James Walker Memorial Hospital.

Established 1901.
Beds, 150.
Cases admitted: Medical, 832; surgical, 1,251. Total, 2,083.
Owned by stock company.
Staff—All reputable physicians of Wilmington.

Tankersley Hospital.

Established 1917.
Beds, 25.
Cases admitted, not given.

WILSON, N. C.

THE MOORE-HERRING HOSPITAL.

Established 1913.
Beds, 22.
Cases admitted: Medical, 125; surgical, 270. Total, 395.
Owned and operated by Drs. Moore, Herring and Anderson.

WILSON SANATORIUM.

Owned and operated by Drs. Dickinson and Williams.

DISCUSSION.

DR. J. F. HIGHSMITH: Realizing the importance of organization with all lines of business, and with an earnest desire to help in the standardizing of the hospitals in North Carolina, that we may have a more complete and uniform system of history taking, the recording and keeping the same with greatest care and further to bring the general physical and routine management of the hospitals in North Carolina to the highest standard, that the hospitals may know each other better, also that they may know the medical profession better and the medical profession know the hospitals better, and that we may render all assistance possible to the superintendents of the training schools in the training of nurses and standardizing the requirements necessary before a nurse receives her diploma, and with many other things of equal importance which can be improved if we work as a unit, I move that a committee be appointed from this Society to take up with the proper authorities the question of organizing a North Carolina State Hospital Association.

DR. C. S. LAWRENCE, Winston-Salem: At previous meetings of this Society we have heard a great deal said about patients treated in other States and other cities. At this meeting I have heard more said of the work done in our own State than any meeting I have ever attended. I think that is timely. I think the paper of Dr. Highsmith yesterday and the demonstration of Dr. Burrus tonight have been a revelation to us. We had not known the work that had been done in the State before.

Just a few things I would like to mention in discussing this most important paper, and that is the organization of the hospitals of the State. We have no organization that brings the hospitals together and to control the work. The records of the hospitals in the State are in poor shape for getting any information from them. It appears to me that it would be well for the hospitals of the State to have a uniform record, every hospital in the State to have similar records. These records

THE MOORE-HERRING HOSPITAL
WILSON, N. C.

WILSON SANATORIUM, WILSON, N.C.

should be well kept and filed with cross index, and bound volumes placed in a place that is easy of access, so that the men of the State who are interested in this line of work could study them. In that way we would have access to all the work that is being done in the State and we would not have so much guesswork when we go to get our data for study. At this meeting it appears to me it would be well to consider appointing a committee to arrange for the organization of a State Hospital Association of that nature.

I enjoyed the paper very much.

Dr. J. F. Highsmith, Fayetteville: This paper of Dr. Burrus I have much enjoyed. I started in the hospital business in 1899. At that time we could safely say, now twenty-five to thirty years ago, we did not have a well-equipped hospital in North Carolina. There was then in Wilmington the old Seaman's Hospital, the Rex Hospital in Raleigh, and St. Peter's in Charlotte. It is a revelation to consider what has been accomplished in the development and extension of hospital work in our State during this time.

While Dr. Burrus was laboring over his work, necessary to the rendering of this valuable paper with the illustrations of the various hospitals in the State, I was at the same time attempting to secure a report of the surgical work done in the hospitals in North Carolina for the years 1915 and 1916. I wrote a circular letter to the hospitals in the State, those I thought to be doing the surgical work, sixty-five in number. From this number I heard from twelve. I believe the cause of not hearing from more than this was due to the fact that their records and methods of keeping case reports were not such that my request could be easily complied with, and they, realizing the difficulty which confronted them, caused them to differ from time to time and no report was made.

One can well see with advance of the times, the rapid construction of hospitals, the improvements in the medical schools, the importance of trained internes and the training of nurses, that it will be only a question of time when it will be imperative to be a Class A hospital. It will be necessary to be ready at any time to make an accurate report of the work done. This is a question of the greatest importance.

Our hospitals in North Carolina are young. During this twenty-five years they have been building, they have been busy and have neglected becoming acquainted with each other. All things have to have a beginning; no one is to blame for this, and I am thankful to say we have made a good beginning. Now is the time for action.

In the attempt to get this report I asked for details relative to the respective cases: For instance, the number of appendectomies, the kind of cases, whether acute, sub-acute, gangrenous, or chronic, etc. Not every person who gets an operation needs it, or is the operation a success, and the patient should be watched for a period following the operation, and if the terminal conditions are good and the patient relieved and made better, then the operation is a success, otherwise it is a failure.

If the surgeon has had experience along a certain line of work for a number of years, if he has a way of tracing up his cases, as to whether or not, we will say in the case of a diseased gall bladder, do a cholecystostomy, or cholecystectomy, conditions of the patient for good or for bad which follows these operations swings the pendulum of medical knowledge, and it is on this kind of knowledge that books are written and knowledge gained valuable to the sick and afflicted. I would thank you, therefore, to consider this resolution which I have offered in connection with this line of work.

Dr. Eugene B. Glenn, Asheville: I am glad of the opportunity of seconding the motion of Dr. Highsmith, and I hope that the Society will take action at this meeting, and that the committee will be appointed.

I have been very much interested this evening in Dr. Burrus's excellent illustration of the hospitals in North Carolina and in Dr. Highsmith's remarks. I fully appreciate the difficulties under which these men have labored during the last year. I believe that by such an organization as has been suggested, in a very short time the hospitals of North Carolina will be placed on a higher plane and uniformly standardized.

Dr. Burrus has shown a large number of creditable institutions in the State, and with the ability of the men who are back of them to carry on the work, we need a uniform system to work by. Then anyone desiring accurate knowledge of the work being done in North Carolina can readily obtain it without such difficulties as these men have experienced.

Dr. Joseph Graham, Durham: Kindly allow me to second the motion made by Dr. Highsmith. Some four years ago, when the Society met in Raleigh, it was my pleasure to read a paper entitled: "A Visit to the Hospitals and Surgical Clinics of North Carolina." Therefore, I assure you that I am fully familiar with the situation and realize that we must have a definite organization to perfect the plans, so ably presented by Dr. Highsmith.

CITY HOSPITAL
WINSTON-SALEM N. C.

Dr. F. R. Harris, Henderson: I rise to state that we have a hospital with forty beds in Henderson for the whites, a stock company, and open to all reputable physicians of the town, and a colored hospital owned by the Presbyterians.

Dr. E. J. Wood, Wilmington: I would like to call attention to the fact that the James Walker Memorial Hospital is the first county hospital in North Carolina. It is owned and controlled by the city of Wilmington and New Hanover County. I would like to say something else. It has been whispered that some inspectors are on the way to North Carolina to investigate our hospitals as Mr. Abraham Flexner did our medical schools, and we are going to be rated on our internes, autopsies, records, and laboratories. Our hospital has been in existence since 1876. We have recently made a rule that no patient shall be discharged until there is a complete record. We have established a complete modern laboratory to do every form of pathologic and chemical work. We have six or seven internes and have adopted the same system in vogue in the northern city hospitals. We have begun to learn already that the statistics of the hospital in Wilmington are of great educational value and we have enough cases to begin to deal in four figures. We can tell the percentage of perforation, etc. Our statistics can be of no value unless records are well kept, autopsies done, and laboratory work carefully recorded with the record.

Dr. Paul B. Johnson, Washington, D. C.: I am not a member of this Society. May I have a minute? The very serious situation of the mountain people when acutely ill has impressed all who have learned of it. I learned just last week that the Presbyterians in Madison County have already broken ground for a small but well-equipped hospital of a dozen or twenty beds, at White Rock, fourteen or fifteen miles from Marshall, to serve the needs of the mountain people of that section.

Dr. H. W. McCain, High Point: In studying the hospital proposition in North Carolina we find the treatment, both medical and surgical, is very good, but the records are bad. We find that the laboratory work done other than urinalyses is poor. We would like to make an appeal for more thorough record-keeping, card index system or some system of keeping statistics, more thorough study of surgical cases before operation.

The motion of Dr. Highsmith is carried.

Dr. Thomas E. Anderson, Statesville: We are an appreciative body, I am sure, and are forgetting one right important thing right

here, in my opinion. This exhibit tonight, which is so interesting and which is causing the hearts of us all to swell with pride, implies a great deal of work on the part of Dr. Burrus. We are indebted to him for a contribution to our meeting, bringing to our attention these things. I move that we express our appreciation for his labors by a rising vote of thanks.

The motion of Dr. Anderson is seconded and unanimously carried.

Dr. C. O'H. Laughinghouse: I hope I will be permitted to make this statement. When the distinguished honor of presiding over this organization was tendered me I left with an ideal, and that ideal was to show to North Carolina men and women and North Carolina's profession that we had in this good old State medical facilities and surgical facilities that could adequately take care of North Carolina's medical and surgical needs. That ideal came to you through the President's message from beginning to end; it came in every section that was put on your program. The councilors I wrote to, and they nominated men to take charge of the various sections, and it was through your councilors that our program was perfected. The surgical section, the medical section, and every section seems to me by the qualities of its papers to have measured up and measured up plus. Dr. Burrus's work, Dr. Long's work, Dr. Albert Parrott's work (unfortunately sick in bed) have been laborious, they have been hard; but as President of this Society I believe I am voicing the sentiment of the Society when I say that they have also been splendid, and I take pleasure on this occasion to thank each and every one, and to state that they have put a notch in the road where historians will stop in future years and write and write and write for the betterment of tomorrow.

Dr. B. F. Royall, Morehead City: I think it has been customary with papers for the presenter of the paper to close any discussion. I think that has been denied Dr. Burrus. That has probably been an oversight.

Dr. J. T. Burrus, High Point: I do not care to do other than to thank Dr. Lawrence and the other gentlemen for their kind expressions. I also wish to say to Dr. Harris regarding Henderson, I made every effort to get a report and a photograph from these institutions, and there are others in the State that I did not get a report from. I think Dr. Long of Greensboro can bear witness to the enormous amount of correspondence that you necessarily have to do for the accomplishment of any of this kind of work. You write fifteen or twenty letters to a doctor, nineteen of them remain unanswered; if you write the twentieth

he responds to that, and says "I have been very busy, I hope you will pardon me for not replying earlier." It is very hard to get these reports. This is imperfect, and we regret that we did not have every institution in the State. We feel that there should be a starting right along this line because I regard it as important not only for the communities that have hospitals; not only for the ones that are to have hospitals, but for the people of North Carolina. If they have a hospital it should be a well-regulated and a well-manned hospital, and if it is not it is better that a community should not have an institution. I am very glad that Dr. Highsmith, with his years of experience, has spoken about the importance of this work, and I am sure that his motion will be met with hearty response.

I thank you for your patience.

Dr. J. Howell Way: The Committee on the President's address have a brief report which, if you will hear it, they would like to report.

Your Committee on the President's Address report as follows:

The address is a most carefully considered document, embodying the results of serious reflection on the many and varying phases of professional activity engaging the attention of North Carolina physicians. An address of unusually high character, it embodies suggestions which merit and should receive attentive consideration from the membership of this body, outlining as it does a resumé of the important matters treated of by recent State legislative enactment.

It also contains material stimulation of intelligently progressive measures and opportunities for future consideration by those actively interested in the means and measures essential to the continued development of the best in the science and practice of our beneficent art.

We advise that the Secretary be instructed to procure its early publication in the lay press of the State. We further advise the careful perusal of it by every thoughtful member of our profession, believing its widespread dissemination of much value.

A number of papers presented, discussions had and resolutions offered during this session relating to vital topics dealt with in the President's Address emphasizes its great value as an index of the best current thought of the profession and will attest the earnest purpose of our titular head in keeping most careful watch over the responsible interests entrusted to his care during the year.

Respectfully submitted,

J. Howell Way.
John G. Blount.
J. W. Long.

Dr. J. Howell Way: We have another brief report of three lines also signed by the Committee:

Resolved, That the annual dues be increased from $2 to $3.

We offer this at this time and ask that it be referred to the House of Delegates. If anything is done about it at this time it is necessary to get it in tonight. I have no desire to debate it here, merely suggesting additional funds are needed, and in my opinion it should pass.

The motion is seconded that said report be referred to the House of Delegates and carried.

Dr. Benj. K. Hays: A wire has been received from Dr. R. H. Lewis, expressing his grateful appreciation of the message which was sent to him by the Society at our noon session today, by the Conjoint Session.

Dr. C. O'H. Laughinghouse: The House of Delegates will meet tomorrow morning across the hall at nine o'clock. As the room will be occupied by one of the sections of the Society it is asked that the House meet promptly at nine, get through in half an hour and get ready to adjourn.

PEDIATRICS

TUBERCULOSIS IN INFANCY

Jesse R. Gerstley, M.D., Chicago.

Perhaps it was the warm hospitality and kindness which last summer I found so typical of North Carolina, that led you to invite me to discuss the subject of tuberculosis in infancy; for you probably knew the statistics which show that tuberculosis is the most frequent chronic disease common to children in large cities, and with your usual true courtesy, assigned the subject to me. Perhaps there was an element of "preparedness" in your idea. Perhaps, having heard me last summer, you thought it best that I confine myself to diseases of cities, rather than to attack more foreign problems. However, I want to take some exception to that suggestion. I believe that tuberculosis is a disease of the *country,* rather than one of the city, and it is for that reason that I am particularly glad to discuss it with you this morning, for many of you are engaged with large country practice.

In 1911 a careful study of the situation in Germany revealed the following interesting facts: The highest percentage of tuberculosis was not found in large cities, such as Berlin, but existed in a certain neighborhood called Huemmling, far out in the country. A commission was appointed to study this, and offer any explanation possible. The first work confined itself to careful investigation of the living conditions in this district, of the general hygiene of the home, the density of population, poverty, climate, and number of people sleeping in individual rooms. The report shows that in this particular province the homes have thin walls, the roof is low, and the whole interior very damp and musty. Stone and cement floors, constantly cold and very moist, are kept dry by the use of sand. The external walls of the houses are porous, and the inner walls dripping with moisture; even the beds are damp and cold. The windows of the living room either are closed or communicate from one room to another. It is interesting to hear the explanations offered for this poor ventilation. Peasants explained that they were afraid of the cold and of drafts; that they were afraid that the chickens might get into the house; some feared the rain, some feared burglars; the absence of screens forced many to

keep the windows closed for fear of vermin and flies; and lastly, in other cases, smoke from the burning moorlands was a factor. The largest room was used for a cow shed; the family congregated in the kitchen, which was insufficiently ventilated.

These studies all go to show that tuberculosis is not necessarily a disease of poverty, but is primarily a disease of the home; a disease in which overcrowding and poor hygiene play the most important part. As Koch said it is not poverty itself, but the insufficient, narrow homes into which, through poverty, the increasing population is driven, that seem to be the large factor. And later he modified this statement further by saying that it is not so much even the condition of the home as it is the condition of the sleeping room.

In these studies in fifty per cent of the cases the sleeping rooms were overcrowded. This same holds true for the studies made in all large cities. Distribution of tuberculosis seems to depend upon overcrowding, particularly overcrowding of the sleeping room. Kaiserling's statistics of deaths from tuberculosis show a distinct rise in the percentage in homes where three persons slept in a room, increasing to an enormous percentage in those occasional instances where eleven human beings were all crowded together into one sleeping apartment. The very worst sleeping conditions were found in this one district described. Here, to provide temporary shelter for peasants during the harvest season, little closets are built right into the damp walls. These are approximatey six feet long, four feet wide, and three to four feet high. In these so-called Butzen sometimes three people sleep, and it is particularly interesting to note that the greatest mortality from tuberculosis in Germany is not in the poorest provinces in the East, but in the relatively prosperous provinces of the North Sea coast, where the architecture provides these accessory rooms. The same also holds true for Sweden; in the northern part where the climate is notoriously healthful, the highest percentage of tuberculosis is found, and here also people sleep in these wall closets, often crowding together on account of the cold. Between times the rooms are used as chicken coops, pigeon houses, and store houses for vegetables, and are cleaned only two to three times a year. The only heat in the entire cottage is that obtained from the kitchen stove.

The schools are overcrowded, and in many instances children come great distances, being exposed to two dangers: (a) the cold; (b) improper food, as they must take their lunch with them.

The question of nutrition is not unimportant. The children on the breast seem to thrive better than those on the bottle, but the latter are subjected to far greater danger than that of artificial feeding, for in

these villages the peasant, who by severe tuberculosis is incapacitated for work, is left at home to care for the child. The food itself is unclean; bread, butter, rolls, milk, etc., all standing unprotected in the open, and frequently containing colon bacilli.

This combination of poverty, overcrowding, hardship and misery, conditions where the homes do not answer the slightest demands of hygiene, force the inhabitants to alcoholism. Studies from all over the world would seem to show that the mortality of tuberculosis is influenced to a considerable extent by the strength of alcoholic drinks; in France, for instance, in districts where the mild wine of the country is taken, 140 of every 100,000 people are infected, against 230 per 100,000 people where the drinks are stronger. Bunge investigated the effects of alcoholism of the parents upon the child. Where parents were mild drinkers 8 7-10 per cent of the children were tuberculous. This percentage increased up to 21 7-10 per cent where the parents were notorious drinkers. This intimate relation of alcoholism to tuberculosis is noted even by the peasants in their folk talk, when they say, "The devil of drink" has brought consumption into this or that home.

The combination of overcrowding, poor hygiene in the home, and alcoholism, leads to great neglect of personal cleanliness. Indeed, the spread of tuberculosis seems related to some extent to personal cleanliness. Indeed, personal cleanliness actually is overlooked. Children go out and bathe with the cows; their long, uncared for fingernails cover dirt for weeks, and this dirt harbors tubercle bacilli. Ninety-six per cent of all the children investigated had uncared for mouths and decayed teeth, and in the latter tubercle bacilli found lodging. The clothing of the tuberculous dead is passed to the living. Swarms of flies fill the homes, and 19 per cent of those flies examined contained the bacilli. Practically in every case where the parents had tuberculosis did the children give positive Pirquet reactions.

And so, these studies show that tuberculosis is not a disease of climate, is not a disease of the city, or of the country, is not a disease of poverty, but it is a disease of the home; a disease of improper hygiene, improper cleanliness, improper food and alcoholism; a disease of the sleeping room. It is an established fact that many peasants have married three or four or five times, and every wife contracted tuberculosis. It seems an established fact that when once this disease enters the poor home it remains for generations.

I have gone into this detail because I presume that in some of your villages, just as in the large city, the home, particularly the sleeping room, is overcrowded. When I received the invitation to discuss the

subject of tuberculosis, I welcomed it gladly. Last summer whenever I suggested to the class that possibly this or that child might be suffering from tuberculosis, the men looked at me askance, their faces suggesting, "We don't have that disease down here; we live out in the country; the air is good." But it is on the basis of the above report, on the supposition that in many of the overcrowded, poor, unfortunate homes in the country tuberculosis now is flourishing actively, that I ask you to follow me to some of the more recent studies of this disease.

METHOD OF ENTERING BODY.

How do the bacilli gain access to the body? Behring in 1903 said the disease was transmitted by milk. He proclaimed the law that the danger lies in the milk supply. A great campaign of investigation was started and throughout the continent arguments pro and con were waged. If the danger lies in the milk then the first infection must be in the digestive tract, and will be "bovine" in type. The great mass of European observers began to differ from this first view of Behring's. Intestinal tuberculosis was much less frequent that the pulmonary type. And the consensus of opinion seemed to be that the organisms gained access to the body more by way of the lungs than the intestinal canal. Orth later modified the Behring idea by suggesting that Behring's cases of intestinal tuberculosis were not primary, but were secondary to lung involvement; cases in which the patients have swallowed the sputum coughed up from the lungs, with resulting infection of the digestive tract. Again, studies such as I have just quoted showed that the disease does not follow milk supply, as it does the density of population. Experiments proved that it was much easier to infect animals by way of the lungs than by the intestinal tract. So much then for the continental idea of the factor of milk in spreading the disease. In England and in America, on the other hand, milk-spread infection seemed to play a greater part. Councilman in Boston, in his autopsies of the tuberculous, reported 37 per cent to the primary intestinal tuberculosis. Roseneau says that 7 per cent of cases certainly are of the "bovine" type, resulting from the milk. In these the lymphnodes seem to be affected, rather than the lungs.

Perhaps the most important study, and the one which has seemed to place primary lung infection upon an absolute definite basis, is the work of Ghom, Albrecht, and their co-workers. In a splendid series of researches in infants, by minute, careful studies of the well-sectioned lungs, they show that practically always the oldest lesion lies in the lung. This exists usually singly, rarely multiple, as a small indurated nodule the size of a pea or hazelnut, often it contains a bronchiole in

its center. It seems to start as a tuberculous, caseous, pneumonia, which sooner or later becomes calcified or capsulated, with a tendency to contract, and difficult to find at autopsy. From this primary focus the infection may spread farther in the lungs. If it is near the pleura it may give rise to a tuberculous pleurisy, the bacilli may be coughed up and give rise to infection of the tonsils, pharynx or intestine. But in the vast majority of cases it spreads directly by way of the lymphatics to the bronchial glands situated at the bifurcation of the trachea. This latter development is by far the most frequent. From any one of these foci the process may spread farther, giving rise to miliary tuberculosis and meningitis. These studies are so conclusive, so accurate, so painstaking, that for the moment we are compelled to admit that pulmonary involvement is the chief method of infection in infants. However, recent studies by Park and Krumwiede, done just as carefully and accurately, show that in America, though adults only infrequently are attacked with bovine tuberculosis, still in children considerable cervical adenitis may result. So we must conclude, if we are to look at the matter in a broadminded way, that on the continent, human pulmonary infection predominates, in England and America the bovine type from the milk may be a factor.

Why this difference in opinion, I am not prepared to say. However, I cannot resist offering an explanation, although it is perhaps presumptuous. Those of you who had the course last summer will remember the tremendous and bitter dispute waged between Europe and America as regards curds found in the infant's stools. You will remember that all this bitterness and rancor were due to the fact that we were discussing different things; that in Europe boiled milk was used, in America raw milk. In America children fed with raw milk invariably showed protein curds in the stools; in Europe babies fed with boiled milk never showed the typical curds which the Americans had described. Isn't this same explanation possible with tuberculosis? In those countries where infection is considered primarily one of inhalation and never intestinal, boiled milk is used. In America and England, where some stress is laid upon the bovine type, raw milk is employed. Isn't it possible that all this dispute is due simply to the fact that we have been discussing different things? That all observers are correct, that when once we all boil our milk the bovine tuberculosis, which up to the present has been of some importance, will be ruled out, and all infections will be of the pulmonary type?

CLINICAL MANIFESTATIONS.

In discussing the clinical manifestations I might describe myriads. I shall confine myself, however, to tuberculosis in infants, for our present idea is that this is a disease contracted primarily in infancy, and if we only can diagnose it early enough it may be cured. It will be of little value to you if I describe the clinical entities of miliary tuberculosis, tuberculosis meningitis, and peritonitis; you know them. These are advanced stages. These are the stages where your treatment is of little value other than to relieve the patient's suffering. What I wish to do is to impress you with the importance of making an early diagnosis, a diagnosis of the process before much actual injury has been done; a diagnosis in time to enable you to be of real service to the patient.

During the stage of primary infection, during the period where the few inhaled tubercle bacilli are producing their tiny focus in the lung, what are the symptoms? They are very few indeed. There may be fever of any type. There may be none. The night sweats of the adult are absent. The blood is unchanged, nutrition unaffected. An X-Ray may show the tiny nodule in the lung, usually the right; but this of course is inconstant. Even the Pirquet is unreliable, and slow in developing, not appearing for five to six weeks after the infection. So you see that during this stage of primary infection, there may be no symptoms of any sort whatsoever, and because there are no symptoms, do not make the fatal mistake of saying this is not a case of tuberculosis. Keep that always in mind, and whenever there is the slightest suspicion ask to see your patient again in a few weeks.

In the course of some weeks as the disease spreads, more symptoms may develop. If it remains localized to the lungs a hard dry cough may persist, with nothing else as a suspicious symptom. In the great majority of cases, however, a secondary involvement consists of infection of the glands at the bifurcation of the trachea. Symptoms arising from this involvement are those of pressure. The cough has a peculiar metallic quality; expiration is prolonged, but not necessarily more frequent, characteristically a sort of whoop appears just before expiration, making this act appear forced. As regards physical signs, these may be entirely absent; sometimes there is dullness between the scapulae, sometimes direct percussion over the spine gives dullness starting at the level of the fifth or sixth thoracic vertebra, and over this region bronchial breathing is heard. Pressure on the vena cava may cause symptoms of stasis, and the X-Ray may show large shadows in the hilus. But remember that after all physical diagnosis is unreliable, and

the main symptoms are the history; a baby of one to six months of age having been in a tuberculous environment, and showing the peculiar barking cough and expiratory crow.

DIAGNOSIS.

In all cases the one test I urge upon you, the one I hope you will become familiar with, is the Pirquet test. The technique is simplicity itself: simply make two or three little abrasions upon the arm, use one as a control, place a drop of old tuberculin upon the other, and note the reaction in 24 to 48 hours. If redness and induration develop the test is positive, and you may safely say that the child has tuberculosis. I have found this by far the most valuable of all our methods. Physical diagnosis in these little patients at best is extremely unreliable, and often reveals nothing, but a Pirquet test in my experience, if positive, certainly in infancy justifies the diagnosis. In a few exceptions a negative test may be deceptive. At the very beginning the test may be negative because the body has had insufficient time to react to the infection. But if you are suspicious, repeat in a few weeks. During the severe stages of tuberculosis, such as the miliary, or the meningeal, the test is negative; but we won't worry about this, because we hope that you will have made your diagnosis long in advance. One other common fallacy occurs during the measles when the test also is negative. The present tendency of some men is to use a modification of the Pirquet, called the intra-dermal reaction, which consists of injecting one milligram of old tuberculin, 0.1 cc. of a solution of old tuberculin directly into the skin. This seems, if anything, even more delicate than the Pirquet. But from my own experience, I judge the Pirquet to be efficient for all practical purposes; where you suspect lung involvement and the child is so young that he swallows all the sputum you may put a swab into the larynx, making him cough, and stain the sputum thus obtained.

PROGNOSIS.

Hamburger in his statistics shows that 80 per cent of children infected during their first year die. Recently, we note, however, that with early diagnosis, and careful regulation of food and hygiene, more cases recover. Mortality still remains very high in those infected during the first three months. To know the duration of the disease it becomes necessary to know the exact date of infection, and this, of course, is very difficult. In just a certain number of cases can it be obtained; for instance, when a child of a tuberculous mother has been taken from her just a few hours after birth, or in cases where a tuberculous father

comes into the home a week after the child is born. Koch's 86 cases arrived at the age of three to twelve months; those infected by the mother died earlier than those from the father; whether the child is breast or bottle fed seems to be of little significance. Mortality seems gravest in the winter. Hygiene was of great importance. Schick showed that the percentage of children passing the first year was much greater in those in good circumstances than in the poor. As regards duration Reich's cases are of great interest. A tuberculous nurse had the habit of blowing air into the mouths of babies as they were born. This is in the nature of an exact laboratory experiment. Of these children death occurred from tuberculous meningitis twice in the third month, five times in the fourth month, once in the sixth, once in the ninth, once in the sixteenth; so apparently mortality was the greatest in the fourth month. The future of tuberculosis in nurslings is grave. If not checked at once it leads to the miliary, or meningeal types, and but rarely to the true pulmonary disease. However, we are learning that if recognized in time it is not as deadly as we first thought. For instance, in bronchial gland involvement, Schick reports, 7 of 20 cases passed the first year. Pollak reports, 22 of 92 cases passed the first year. Hahn reports, 19 of 69 cases passed the first year.

TREATMENT.

If you have followed me, you will readily understand that by far the most important phase in the treatment of tuberculosis in infancy is prophylaxis. In every case where the mother is affected the child must be taken from her. It is of vital importance to the life of the child that he be protected from any source of infection. This means removal from the breast, disinfection of her sputum, boiling and cleansing of all dishes and food utensils, protecting the bottles of milk from contamination by vermin and flies. But don't let us forget that in this country bovine tuberculosis still plays a part, and in all artificially fed children let us recommend the boiling of milk.

As regards the active treatment, general hygiene is by far the most important. We all know the benefits of climate, and in this regard you in North Carolina are particularly fortunate. Food is not a small factor, fresh air I need not mention, and above all things do not forget the influence of sunshine. Perhaps the most valuable agent we have is pure unadulterated sunlight—not the sunlight filtered through glass windows into sun parlors, but the sunlight of the fresh air and the fields. As regards medicine, cod liver oil, arsenic, and, in anemia, iron have their value.

To summarize, tuberculosis is a disease of poverty, alcoholism, poor hygiene, filth, and overcrowding; overcrowding not only in the home, but particularly overcrowding in the sleeping quarters. It is contracted in the majority of cases in infancy by direct contact in countries where milk is boiled, the child inhaling the bacilli into the lungs. If diagnosed early in many cases it is curable. But by far the most efficient, and by far the most humane method of treatment is to circumvent it by way of prophylaxis. Let us see if we cannot spare our little children infection rather than expose them, and then attempt what so frequently is only vain and hopeless, a cure.

DISCUSSION.

Dr. I. W. Faison, Charlotte: I agree with Dr. Gerstley that the ratio of cases of tuberculosis in the country is greater than in the city. Statistics show that even in the great State of New York the number of patients with tuberculosis in the country districts of New York amounts to more than in the great City of New York. We have anything and everything on the face of the earth to bring about tuberculosis. I am satisfied that it is in the homes and the conditions that surround them, especially personal exposure, for a person with tuberculosis will give it to somebody else. The great majority of the cases are children, who are thrown into close association with these people; hence we have tuberculosis transplanted into these poor little innocent fellows by the men and women who are responsible for them and who fail to take care of them.

The architecture of this country ought to be changed, and every county and city in North Carolina ought to have the right to prohibit the building of such houses. The schools, too, are overcrowded in my own county, and it is true of the greater part of the State—absolutely overcrowded, to a disgraceful degree.

Dr. Gerstley shied on the subject of alcoholism; he said it was a dead issue. It is not dead. I have seen a man in this county drunk today —not yesterday, but today—who had to be arrested. This has already happened today—before I got up good. And so alcoholism is not dead. If it is it's the livest corpse I have ever seen. It is not the one drink of alcohol, it is the continuous, excessive use of it, encouraged by the man who makes the money. He brings it about and connives to take away from children the proper amount of food that God Almighty intended them to have.

There is bovine tuberculosis as well as human tuberculosis in this country, and I think and have thought for some time that that is the explanation. Then why tuberculosis of the lung in a baby if boiled

milk kills tubercle bacilli as it comes from the cows? I believe that the matter could be traced to lung infection in the great majority of cases that we have of tuberculosis. When you see these little children run down, poor, and their temperature rising, as Dr. Gerstley says, don't pass it by—it's tuberculosis. You may put it down to something else; you may be heedless and willing to pass it by and put it off on some other cause; but it always comes back. Did any of you gentlemen ever go fox-hunting? I have a great deal, and I never yet saw a fox that if it went ten miles away would die before it came back to the starting point. We always caught him somewhere close by home. So it is with tuberculosis; we haven't far to go to seek the cause.

In speaking of the Pirquet test, some of you seem to think it is the one and only method. Now, listen: don't jump at tubercle bacilli and play with it as a child plays with a marble. You're fooling with one of the most dangerous playthings in the world. I believe in it, yes—and believe it ought to be used; but I believe a man ought to get well trained before using it. I think in dealing with tuberculosis we should never use it except and only as a last resort for diagnostic work. It has been figured out that one tenth of the children born into the world are hyper-sensitive to tuberculosis. By birth? No, I don't believe that's got anything to do with it—I am not talking about the question of inheriting tuberculosis. But you take children about two years old—one can't tell the exact time—and you will find that they are hyper-sensitive to tuberculosis. They ought not to die, but they are going to die, unless they are rescued, if they are allowed to live with a person who has got tuberculosis. Don't go off and play with tuberculin test. I am going to differ there with Dr. Gerstley and differ materially. He said it was a good plan to scarify the arm. I don't know what he may call scarifying, but I know that you scarify the arm so that you can see the blood on the arm. You only want to take the top skin off. You may well say this is a delicate test; it is too delicate for our people—you and me—to play with.

If there is no reaction, you may put that child down as not being hyper-sensitive, and needs no treatment. Tubercle bacilli go through all of us—I expect they have been through me and I have not tuberculosis. If there is fever and you can't find anything else as the cause use the X-Ray examination. It is one of the most dependable things we have and if it shows a little spot here and there, you may look out for your diagnosis—the prognosis is bad. There are very few cases in that state that have gotten well. If we are not very specific in these

cases under two years of age and scientific in our management, only a few will get well in the hands of skillful men; but it is likely that the treatment won't be in the line of success, but in the line of absolute failure.

We recognize, then, that it is overcrowding and personal exposure that is responsible for most cases of tuberculosis, as Dr. Gerstley has said. I believe he is right about overcrowding. Still I believe if you crowd twenty children in a room and there is not a child among them that is hyper-sensitive there will be no infection, and I believe you will have twenty men grown who do not have tuberculosis. The danger lies in personal exposure to the patient who has tuberculosis.

Dr. Gerstley is right about putting prophylaxis first. And then have them go out in the fresh air and sun. There is no country that is richer in these things than this, although this is the first time I've ever been here that it didn't rain. I was glad to see that it didn't rain, for I didn't believe a day passed here without rain—at least, it has not been my experience on my visits here. This is a fine country, and there are great men in it whose reputation as tuberculosis specialists stand equal to that of any men in America.

A long step in the prolongation of the life of the human race has been made through the work of the pediatricians. They have accomplished more to prolong life than any other set of men on earth. The life and the health of the child have got to be insured to increase the longevity of the human race. This has been done through the work of pediatricians and you have helped; and I hope, that you will keep up this work and go on with it with the resolution that the death rate because of tuberculosis shall be decreased and that an increase in longevity shall be made.

Dr. C. L. Minor, Asheville: There are a few points on this subject which I would like to dwell upon. The diagnosis of tuberculosis in young children is very difficult, and the X-Ray has been a great assistance, but not so much in early cases because until calcification or caseation occurs the glands give no shadows. Nevertheless, where it is available, the X-Ray is the essential thing in the diagnosis of these conditions, since childhood infection is so apt to be in the hilus.

Now, as regards the question of treatment: While a child may be cured during childhood, I think it safer to regard such a child as tuberculous until he reaches at least twenty-five years of age, and I always tell the parents of such children that they must be prepared to watch over the child, to care for it in every way, to keep their eyes open, however well it does, until it reaches its twenty-fifth year. If these children

are well-trained, docile and teachable, you have a very fair opportunity to conquer the disease, but I would stress the value of teaching. The treatment of tuberculosis is largely a matter of careful teaching on the doctor's part. The difficulty with very young children is that the teaching side falls out and you can only trust to ordinary management.

I am very glad that Dr. Faison is interested in heliotherapy, though it is rather a pity that living in the smoky atmosphere of Charlotte, he can get very little opportunity, I suppose, to apply it. If he would only live long enough in Asheville, he would know how easy it is to apply it here. I have used it on a number of cases and have been very well satisfied with it as a general roborant tonic.

There are two drugs I especially like in tuberculosis in childhood for building up the system—one the mixture of syrup of iodide of iron with the syrup of lactophosphate of calcium, and the syrup of hypophosphites, and the other our old friend, cod liver oil, which in the winter months is very well tolerated by children and certainly is valuable. I usually give the former in the summer months and the oil in the winter.

Another important thing in treating children with tuberculosis is to teach the mother. I am very glad and willing to pay tribute to the beauty of mother love, but just the same when their children are sick, I find too often the mothers are a handicap to them. The fact is, they "love not wisely but too well." Where the heart comes in, the head goes out. Every doctor here, I expect, has seen children die because their mothers have not taught them to control themselves, nor were they able to control the child; and since the success of the treatment of tuberculosis in early childhood largely depends on the mother's self-control and intelligence, we will have to teach them continually to control their feelings and their emotions, and just do what is necessary. Where mothers are not only devoted, but are intelligent and self-controlled, they are an infinite help. Get the mother to take a scientific interest in the case, keep a record, watch the case closely and yet not coddle it; get her coöperation, and you will get very different results. This is all the more necessary as the cure of tuberculosis in children is such a slow thing and lasts for so many years.

The question comes up, how much education should tuberculous children receive? On the one hand, there is the danger of their growing up ignorant—a very great danger; and on the other hand, the very great danger of tiring themselves out by over-study. We should lay more stress upon the bad effect upon them of the unhygienic conditions in schoolrooms and the long hours, and the possibility of contracting infectious diseases. I really believe that if I had a child and had to

choose between its growing up absolutely ignorant because it had tuberculosis, or taking a moderate degree of education, even if there was some risk in it, I would choose the latter, for it is a very serious thing for a child to get the habit of not studying into his mind; and ten to one when he gets older he will be a dullard; if he gets the habit of idleness you can't drive him to work. At the same time, it is true that most schoolrooms are stuffy and cause headaches, and we ought to encourage in every community the development of open-air schools, whose effect is so wonderful.

I find the making of a prognosis in childhood tuberculosis is extremely difficult. The best way to do is to simply watch and wait for results and make no prognosis at all. Some very bad cases will pull through to our surprise; other hopeful ones will die. All we can say is that when it begins as a scrofula, the prognosis for life is distinctly better.

Dr. L. W. Elias, Asheville: I believe the points have all been covered so completely that there is hardly anything to add, but I would like to say that in diagnosing tuberculosis I don't believe we always get correct results in using the skin test on a child who has tuberculosis. You cannot absolutely depend upon it, especially in some cases where you want it badly and don't get it. The X-Ray is a valuable aid, but here if you simply take the X-Ray and sit down and look at it, nine chances out of ten you will not know what you have. So we need a proper interpreter in the X-Ray examination of the chest.

Another point Dr. Minor made was, that we can't do as much with children as with adults, and that we can do less still if the mothers interfere. But most important of all in the South, we are inexcusable if we don't have the children sleep out of doors at night. After a child is a week old it ought to be out of doors twenty-four hours in the day, except when it is being nursed and bathed. You may keep the child out of doors at night, all through the winter, the longer you keep them in the open air the healthier the child will be, and in the South there is absolutely no excuse for not doing so.

Dr. Charles L. Minor, Asheville: I have greatly enjoyed Dr. Gerstley's interesting paper and its valuable suggestions. Fortunately today we are directing more attention to the prevention of tuberculosis than formerly. In earlier years we always spoke of the treatment, but it is evident enough that the best of all treatment is prevention, and that the best preventive is to guard against childhood infection since recent scientific work has shown that probably all children by fourteen years of age are already infected. In taking our histories we are too apt to satisfy ourselves with the superficial statements of the patient.

If we go into it carefully often enough we will find that the real beginning of the trouble dates anywhere from five to forty years before the time when the patient came to us, in childhood or youth of the patient.

I find further that too many doctors are not careful of children in families in which cases of tuberculosis have lived. Where it is possible, all children should be taken out of the house in which a tuberculous patient is living, although with adults it is by no means necessary. Frequently I see cases where older relatives, who have had a chronic cough for years and not realized what it was, have infected several of the children of the family. The only way to prevent things like this is a hygienic survey of the members of the family every year.

As regards diagnosis, I must differ from my friend Dr. Faison, as to the value of the von Pirquet test. Doctors are making a great mistake in relying on the von Pirquet test for evidence of active tuberculosis in any but children two years of age. As to any danger coming to the child from the possibility of infection should we adopt the tuberculin skin test, this is entirely out of the question. Tuberculin in itself is sterile, with no living bacilli in it, and it would be perfectly impossible to infect a child by scratching his arm and rubbing in some old tuberculin. On the whole I find that no good, but a good deal of harm, however, has come from the popularization of the von Pirquet test, as men seem to think that it is enough to make a diagnosis upon.

HABITS GOOD AND BAD DURING THE FIRST YEAR OF LIFE.

Dr. K. P. B. Bonner, Morehead City, N. C.

The subject selected for discussion in this paper is, unquestionably, the most important problem now confronting medical men. Its solution is easy if only the profession would awake to a realization of the prime necessity of facing the question squarely and meeting the issue. During the past decade the progress made along the lines of public health work has been well-nigh incomprehensible and it is impossible to estimate even approximately the benefits mankind has derived therefrom. Public health is nothing more nor less than prophylaxis or prevention, or preventive medicine, if you please, and so much has been accomplished and the benefits are so obvious that the public now looks to the profession to guard it from what to it is hidden evils. The pace

set is so great that the public is looking for greater and better things all the time. During the past two years the whole trend of medical thought has been distinctly toward prophylaxis.

What is a more prolific field for brilliant work than the new-born child? The care and training it receives during the first year of life largely determines the health of the adult in years to come, should it be so fortunate to reach that age. At the same time, this same care and treatment very greatly influences the infantile mortality rate and is decreased in the same proportion as the influences governing the existence of each infant are directed in an intelligent manner. All men are infants at the start and the field is universal. The benefits to be gained cannot be over-estimated. The subject of the life of the infant is the taproot of the whole realm of public health work as the healthy, vigorous baby will more than likely be the strong, healthy adult.

When we consider seriously the responsibilities incident to the care and upbringing of the newborn infant, we are almost appalled by their magnitude. What a potential source for either good or bad results! The situation is grave, but the solution is easy if but undertaken in an intelligent manner. This responsibility rests upon the family physican first, and the parents last. To shirk the duty would be only perpetrating a wrong upon an absolutely defenseless and innocent individual which could only result in suffering and sorrow in the years to come. It is high time that the profession awoke and realized that it is largely to be blamed for the present condition of affairs. This dereliction of duty has not occurred as a result of ignorance among the physicians, but entirely because they have neglected to expend a little time in informing mothers relative to the care and management of their babies. This should be done not casually, but emphatically. The facts have been so obvious to the profession that it has assumed that every mother already knows them. As a result of this assumption great harm has resulted for which the doctor is directly responsible. Every mother is not only willing but anxious to do every thing possible for the welfare of her offspring, and if she has erroneous ideas as to its care and management only harm can come of it. The trouble and worry incident to raising a baby of good habits are tenfold less than one of bad habits, and the harm to the infant from a standpoint of injury to health cannot be estimated. The extra time lost every year in bringing up babies of bad habits among American mothers, if known, would stagger us. This is an age of efficiency and it is time that the profession expend a little time and enable the American mother to be more efficient.

The writer knows of no better comparison than that of comparing the newborn infant to a blank page. The page is receptive to impressions

and so is the child. It is for those coming into contact with it to leave a good or bad impression. Let us rest assured that the impression is invariably left, be it good or bad. This is inevitable, so the matter to be determined is whether we shall imprint good or bad; whether we shall write or blot the page. Blots represent the bad habits and result in ill-health and suffering to the baby and additional burdens imposed upon the mother as well as the burdensome existence to the baby.

This subject is entirely too broad to attempt to discuss it in all its aspects, so the writer shall confine his remarks to the good and bad habits which influence the physical condition of the infant. The moral, mental, and psychic training will be ignored. These really belong to later years. If proper care is exercised during the first year with the object in view of conserving health, the other training of later years becomes much simplified. When once a start is made all along the right avenue half of the battle is won.

The average person, including both the physician and the laity, regards the infant as a miniature adult. Nothing could be more erroneous. As McKee and Wells have most truly said in the opening chapter of their most able text-book on Pediatrics, "children differ from adults in three fundamental and essential respects: (1) In their structure (anatomy); (2) In their activities or functions (physiology); (3) In their reaction to disease (pathology)." With these facts already in mind the way is easy. See that the mother is impressed with the truth of these facts. Her view of her baby will entirely change.

Immediately after the advent of the newborn infant it is the duty of the physician to ascertain if the mother is rightly informed as to the care and management of the baby. She may have been the mother of many children previous to this time, but this does not relieve the doctor of his responsibility. It is his duty to know and correct any erroneous ideas. Succeeding in this, the doctor's work has only begun, for every mother should be made to feel that the doctor is not only willing but glad to suggest ways and means of tiding over difficulties which arise from time to time in the year to follow. Incidentally the doctor is not financially the loser by this arrangement even though the advice be given gratis. The child is the great gainer and this is a duty owed to the public.

The mother should be informed that it is only natural for a newborn baby to sleep twenty-two hours out of twenty-four. No less than fifteen hours should be considered essential until the end of the first year. A mother should know and realize that under no circumstances should the baby be aroused unless necessary. A word just at this point is not amiss in paying our respects to the time-honored cradle of our fore-

parents. In my practice I have seen bad babies deliberately made by this device. The writer has seen mothers who could only work with one foot on the cradle rocker. What a tremendous waste of time and energy that could otherwise have been wisely expended! The baby is encouraged to become selfish at the expense of the other members of the family and with harmful results to its physical make-up. The old and trite proverb "the hand that rocks the cradle is the hand that rules the world" could be very truthfully amended in the light of our present knowledge to read: "The hand that rocks the cradle is the hand that *misrules* the world," for we must admit that the woman that raises her infant in the most intelligent manner is the one who is exerting the most influence in the world today. The mother who gives the baby intelligent care gives to the world the intelligent adult, and the mismanaged infant goes to fill up the ranks of mediocre individuals. A baby never misses something it never had, and for that reason the use of a cradle can be easily dispensed with if never begun. A baby will sleep without help if it is not ill, not hungry and is comfortable.

The act of taking the baby up when it cries is one of the most common and pernicious practices and sets in motion a vicious cycle, which results in harm to the baby. It is another instance of taking pains to make trouble for oneself. Crying to a certain extent is a physiological process, and during the first few days of life is absolutely essential for the expansion of dormant lung tissue. It is during this period that most babies are spoiled to such an extent that the damage is never repaired.

Kissing and care of mouth. Both of these subjects will be considered in the same paragraph. Kissing is to be condemned in toto. The kissing of the baby on the mouth is many times the means of communicating disease to the helpless infant. The mouth should receive scrupulous and painstaking care. This is the most important avenue for the introduction of the various pathogenic bacteria into the body and much can be accomplished in prophylaxis by attention to this little detail.

Bathing. This is an essential part of the daily routine of the baby. The cleansing properties of water are unquestioned and make for a happy and contented child. Incidentally the habit inculcated in the child means not only much for it, but this is a duty due society in general.

Nursing and feeding. The diet of the mother when she nurses the baby from her breast should be the usual one that she takes under ordinary circumstances. Many mothers are under the erroneous impression that they must practically starve themselves in order to give milk of suitable quality to their babies. The results are many times disastrous to the welfare of the baby. Whether nursed from the breast or bottle-

fed, the baby should be fed at regular intervals and only at regular intervals. An inflexible rule should be adopted at the outset and strictly adhered to. See that baby gets sufficient nourishment at the time of feeding, and no anxiety need be experienced that it will suffer from lack of nourishment until the next feeding period arrives. The newborn baby requires ten feedings during the twenty-four-hour day,—one of these only during the sleeping hours of night. As the months pass by these are gradually reduced until by the end of the first year the number is reduced to five, or at most six. After the first six months every baby should have been trained previously so that it does not even expect to be fed between 10 p. m. and 7 a. m. Such a feeding routine results in healthy babies that scarcely, if ever, require the attention of the doctor. We see no digestive disorders and very little of the other complaints that affect the baby. The baby has good habits formed by this procedure and is happy, contented, and well. In my practice the above has been my observation after a careful investigation with the very object in view. One little fellow has been sleeping in a room alone in another end of the house since he has been eighteen months of age with nothing heard from him until promptly at 6 a. m. he comes out for his first feeding of the day. An alarm clock could not be more accurate than he. On the other hand, let us consider the baby of irregular feeding and the concomitant evils attendant thereto. Each time it cries or shows any signs of uneasiness the nipple is stuck in its mouth. Fuel is being added to the fire. The bad baby is being made worse. This baby is always cross, teethes hard, requires the attention of the physician on an average of twice weekly during the first year, and keeps his parents awake a greater part of each night. The whole category of bad habits occur in such a baby almost invariably, and life is a nightmare to both parent and child. The baby has then developed winning ways to make people hate it. A number of mothers have told me that their babies would not rest at all at night unless they could have the nipple in their mouths. What a reflection on their intelligence! On one occasion I was called to see a little patient, and the mother related that it was impossible for either she or her husband to sleep for even a moment, day or night, on account of the incessant crying of the infant. The baby in question was a healthy and robust child and revealed no ailment on examination. In reply to my query as to how frequently she nursed the baby she stated "that she would judge that it was as often as every fifteen minutes." When I suggested this as a possible cause for the trouble she was plainly skeptical. When asked her reason for such frequent nursing, she replied "that the neighbors had advised her that this was merely an evidence of hunger on the part of the child and that she must by all means nurse

it when it cried." She began to see the light when asked how long she thought her own digestion would stand the introduction of food into her stomach at fifteen minute intervals during the twenty-four-hour day for days at a time. The result was a reluctant consent to the trial of three-hour feedings, which were conscientiously carried out, and two days later a radiant mother informed me that her baby was cured.

Too many mothers this day and time are using their nipples as pacifiers, and when so used are more deadly than a machine gun. The result to America of such pernicious practice is the death annually of more miniature citizens than are killed in many wars.

Bowels and bladder. Training is essential for these important organs of excretion, as good or bad habits may be formed dependent upon the right care. A baby should be so trained by the time it is six months old, that all evacuations from the bowels are passed into its little chamber. At twleve months the child may have been trained previously to never wet a napkin. Enuresis is in the majority of cases due to lack of training on the part of the mother during the early part of life. The cause of this disease many times is due to inattention to this important matter. Only a few months ago a mother applied to me for suggestion relative to the cure of seven children who had been bed-wetters all of their lives. The regulation of their diet and water consumption and the administration of a solution of atropine in ascending doses resulted in immediate cure of every one of the children and the most grateful mother I ever saw. She remarked to me in reporting results "that she felt like she was just beginning to live."

Exercise and outdoor air. The baby should be early trained to expect to be taken out in the open air every day. It may be that inclement weather may prevent its going out. Weather below 20 degrees F. and at midday in summer is a contraindication to taking the baby out, but the baby can be dressed for the street and the windows in the room occupied by it thrown wide open. This procedure suffices almost as well as an outing. The effect of outdoor air and exercise makes healthy babies and very materially increases the resisting power against respiratory affections. If you please, this is what may be termed the "hardening process."

In conclusion, this intelligent handling of the baby with the object in view of the production of babies of good habits is a very material aid to the work of the State Board of Health. Were every baby so managed in the future, the work of the State Board would be largely finished, or, to say the least, greatly simplified. We must pay more attention to our young ones if we expect to have a healthy citizenship.

FOCAL INFECTIONS OF CHILDHOOD.

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All disease is infectious or non-infectious. This is a broad but true classification. In the first instance the dependent cause is based upon germ life in the body; in the second, the dependent cause is based upon heredity, environment, and habits of the individual.

In childhood is laid either the foundation for future body health and strength, or the warp for the fabric of future tragedies in ill health and inefficiency. Most infectious disease is inflammatory in character; that is, either primarily or secondarily is, solely or partly, caused by the pus-producing germs, staphylococci and streptococci. This is clearly set forth by the termination "itis" in the nomenclature of disease which reads as follows: From above down—Meningitis, Otitis, Mastoiditis, Tonsillitis, Pharyngitis, Laryngitis, Bronchitis, Endocarditis, Gastritis, Cholecystitis, Peritonitis, Pyelitis, Appendicitis, Cystitis, Osteomyelitis, Neuritis, and so on. Man seems to be the sponsor for suppurative inflammation, and his body furnishes the natural habitat for these organisms. It is a distressing fact that children and early in life are so universally the victims of this kind of germ life—which in its chronicity, assumes a parasitic phase, preying upon and undermining the body strength. This parasitic life and effect in the human is comparable to parasitic blight in vegetable life.

Focal infection means a fixed area (it matters not how small) of chronic pus-germ infection anywhere in the body. Owing to the vulnerability of the parts, probably ninety-five per cent. or more of these infections first exist in the mouth and throat, because first of the location, since it is here that all germ-laden material enters the body; second, because of the character, since the pockets around the teeth, in and around the faucial tonsils, and in the adenoid tissue, furnish ideal living conditions, where at a body temperature, shut in from the air, (these organisms are anerobic) and in a media of blood serum furnished by the congestion which their presence produces, these organisms, if unmolested, will continue to live indefinitely. Barring the venereal and traumatic routes, there is practically none other, save by way of the head, for infection to gain entrance into the body.

Once pus germs have an abiding place in the body the uncompromising purpose and result of their existence is the production of death, either slowly or quickly. (An abscess is local death.) There follows skirmish after skirmish with man's vital body resistance pitted against

germ poisoning. It may be only the first step of inflammation, or congestion, which condition about the head and respiratory tract, we are wont to call "colds," "grippe," etc. In this instance, with recovery, man comes out worsted and he shows it, even with all the vitality of childhood. At any time may be looked for the *big drive* of inflammation, independently or as a complication of other diseases, possibly involving vital parts as in the abdomen, chest, or cranial cavities, with the strong probability of a quick victory of germ over man, and death over life. Again the process may be the usual slow and sinister one, the victim having no pain or local inconvenience, (though usually a catarrhal state which the bulk of people have taken as a matter of course in life). This process is one of slow toxemia, which ultimately results in impaired body functions and pathological tissue changes, principally in heart, kidney, and blood vessels. Of this slow or chronic process one observer has said that it fails, (unlike that which takes place in active inflammation) to stimulate the elements of tissue resistance and body immunity; therefore the body lacks its self-preservation. Another observer has said in reference to the sinister nature of chronic infection of tonsils, that he is guided largely by general conditions resulting from the infection, rather than by the appearance of the tonsil and local symptoms.

Having said that focal pus germ infection is a fixed area, not massive, but usually small and shut-in, is primarily in at least ninety-five per cent. of cases in mouth and throat and is universally prevalent in childhood (for under existing conditions it is almost impossible for the child to escape); I wish to mention some of the most common ways in which this germ life harms the body. To do this, it is necessary first to consider physiological and pathological effects, local and general.

The local manifestation of the presence of pus germs in the tissues is that pathological state termed congestion. Congestion, the first step of inflammation, varies in degree, but is always marked by the same changes, namely, dilatation of small blood vessels, cell migration, and transudation of the liquor sanguinis; this process kept up, that is, becoming chronic, results in new tissue formation which displaces the normal tissue. This pathology beginning in childhood, and unchecked, is to be a great detriment to the future health of the individual. To the child it means a strong predisposition to infectious and contagious diseases (the congested mucosa of head, throat and respiratory tract is fertile soil par excellence) especially for such diseases having initial lesion in those parts, as diphtheria, scarlet fever, tuberculosis and pneumonia. If with a focal pyogenic area in the head the child escapes serious inflammation; the common ones near by are in middle ear,

mastoid, and accessory nasal sinuses, and the distant ones by transference, with reference to which E. C. Rosenow says: "The focus of infection is to be looked on, not only as the place of entrance of the bacteria, but also the place where the organisms acquire the peculiar property necessary to infect, and that these foci are so common in patients suffering from arthritis, neuritis, appendicitis, pyelitis, ulcer of the stomach, cholecystitis, goiter, etc., that their direct etiologic role can scarcely be questioned." C. H. Mayo says: "The old idiopathic osteomyelitis of the child, we now know may follow a short time after a specific tonsillitis." Billings speaks of alveolar focal infection as the dominant factor in malignant endocarditis, chronic arthritis, and myositis. As said, if the child misses serious inflammation, there are numerous troublesome minor ailments as recurrent "colds," catarrhal laryngitis (false croup), bronchitis, frequent feverish attacks, attacks of so-called indigestion, enlarged glands, etc.

Taking "cold" being nothing more nor less than the lighting up, or active manifestation of an already existing passive pyogenic infection in the head, is indisputable evidence of focal infection, and is warning and warranty enough for getting the head rid of such infection.

The general or constitutional effect of focal infection in the body resolves itself purely and simply into one of poisoning. Whatever the toxin produced by the pus-germ may be we know that a sufficient dose in the circulation (as happens in an acute state of inflammation) causes decided constitutional disturbance; the individual is ill, there is an acute state, an acute sepsis. Now, what of the subacute or passive state when the area of infection is in mouth and throat, where, owing to character of tissue, absorption is rapid? Most assuredly, in varying amounts and continuously, absorption is taking place. Surely Metchnikoff had in mind the pus-germs, when, shortly before his death, he is quoted as saying: "The micro-organisms inhabiting our bodies have set going there a poison factory, and by secreting poisons which penetrate all our tissues, injure all our most precious organs, our arteries, brains, liver and kidneys. I think this poison produces primarily an anemia, the most baneful effect of which is to produce muscular weakness, especially the unstriped muscle (called muscle of organic life)." Please note Gray's Anatomy, page 68, for the location in the body of this variety of muscle. I would especially call attention to the fact that this muscle is found in the walls of the gastro-intestinal tube and blood vessels. Consider this fact and one readily appreciates the gravity and seriousness of the situation in case of their weakness and failure; especially is this true of stomach and intestines, for long before reaching the stage of actual gastrop- and enteroptosis, there is impaired digestion,

constipation and auto-intoxication. So, in addition to the germ produced poison which enters the circulation, the individual, handicapped by checked nutrition, is also poisoning himself through a process of faulty digestion. Now the child, though it have a surplus energy, vitality and body resistance, is not always able to overcome the effects of this toxemia, and we find children (even if there exists no organic lesion as of heart and kidney) with all manner of functional disturbances, especially of a nervous character. The list embraces pain of different kinds, chorea, general physical disability, mental apathy, perverted disposition, and moral deflections.

In addition to anemia, I think that as truly characteristic of their existence, the pyogenic organisms produce a toxin, in itself irritating, and capable, when in the circulation, of setting up a congestion, especially where there is a multiplicity of small blood vessels as in the kidney, producing ultimately after long standing, that permanent pathological state which we call nephritis. To my mind by far the most prevalent cause of nephritis, arterio-sclerosis, and endocarditis is the effect of long standing focal infection. Because of these ultimate results, and not to disrupt the rightful expectancy of a life, (for the child is to be the adult) it is important not to wait for evidence of organic lesion. The measures of prevention should begin in childhood and early. Anything and everything we may do is of little moment, if our patient has lost forever the functionating power of the kidney and his blood pressure is continuously high. Was ever tragedy more tragically experienced, than when nephritis or a heart lesion hopelessly dooms the mother of small children? Can hope and the natural expectations of life be more cruelly dealt with than when, after months or years of preparation by the pus-germs, tuberculosis enters, and the twain crush out the life of a young man or woman? Is there a more pathetic picture than that of the pale face, lack-luster eye, and pain marked brow of the anemic, rheumatic and neurasthenic individual who drags out an existence of failure, perhaps with transient periods of drug induced contentment, or perhaps ending the unbearable with self destruction? These things and more we are acquainted with as daily happenings in our midst. The history and investigation in nine cases out of ten will reveal the fact that focal infection has existed from childhood.

Now, in the child, that extreme visual evidence (nor is it necessary in the adult) of bleeding gums, loose teeth and carious bone is seldom seen, yet fixed areas of pus germ infection in the mouth are plentiful. Such an infection is marked by any departure from the firm pink tissue hugging the tooth closely. It is not necessary that there be pain, swelling, etc., in connection with the pyogenic infection of the tonsils; con-

clusive evidence is in the varying degrees in congestion in the surrounding mucosa. So much for the sinister and insidious character of this passive or semi-active germ life.

As to location, focal infection is most harmful when in mouth and throat, because the excessive lymphatic drain of the parts readily takes toxins and, more often than supposed, bacteria themselves into the circulation. It is not difficult to see nor is it far fetched to presuppose the transference of infection from an area in the mouth or throat, directly through the circulation to some distant part, or the infecting material may be swallowed and taken into the circulation from the digestive tract. And thus, the primary focal infection be the real cause for a pyelitis, cholecystitis or appendicitis, especially if the condition of constipation and stasis, and a below par resistance, the general result of the infection, invites invasion.

I believe an already septic throat has a most important bearing on scarlet fever (largely a disease of childhood) both as to its prevalence and the gravity of its results. Report of the investigation of Mallory and Medlar of Boston is that the scarlet fever organism spends itself early, and that the real damage is done by the streptococcus, for which the scarlet fever organism opens the way and favors its growth. Likewise, the prevalence of other diseases having initial lesion in the head and respiratory tract, notably diphtheria, pneumonia, tuberculosis, must be greatly influenced by having the pus germs prepare a fertile soil for the planting.

Chronic pus germ infection as it exists in man today is nothing less than a scourge. Fearful among the poor and laboring classes, but is no respecter of persons, and numbers its premature deaths also from the higher social strata, and ranks of Croesuses. If doubt exists among you, acquaint yourself with what approximates in appearance a healthy mucous membrane in mouth and throat, and then examine the mouths and throats of a few, some from among those that have not the acquaintance of the toothbrush, and some from among those that are supposedly cleanly, and you will be astounded at the findings. You will be able to arrive at the cause of many cases of rheumatism, neuritis, high blood pressure, and albumin in the urine.

The surgeon wears gauze over his mouth to protect his patient from the emanations from the fixed areas of infection in his own head, (the floating population are not apt to harm); cures his patient of an acute inflammation in the abdomen, and then is apt to neglect his own, and the primary area of focal infection in his patient. Many have been the brilliant surgical efforts in relieving a focus in the abdomen, only to be

followed by failure to ultimately cure, and get satisfaction for patient and doctor, because the primary chronic focus in the head has been left unconsidered and untouched.

Ridding the race of the menace of chronic pus germ infection is essentially a matter of public health, for, considered from the standpoint of influence on man's welfare and mortality rate, it ranks in importance ahead of all features of public health work, not excepting that of typhoid fever, hookworm disease, tuberculosis, etc. As the great superinducing factor in practically all diseases in dealing effectually with focal pus-germ infection, we strike the very keynote of prevention. The "stunt" and the spectacular in medicine is all right; likewise hours of study and investigation of the obscure and phenomenal things is all right so long as due importance is given the fundamentals.

Sinister and insidious in its workings, this chronic infection diverts attention from itself and causes the blame for death to be placed on disease of another name, which it has superinduced and aided. For this reason, I think very little has been done to improve conditions, so far as focal infection is concerned, by public health authorities.

Guardians of the home can bestow no greater legacy upon the child than to insure a body free from fixed areas of pus-germ infection. Guardians (State and Nation) of the public welfare can in no way better preserve the efficiency, and promote the longevity of its people, than by expending all possible energy toward exterminating the parasitic blight of focal infection.

One must realize, that it is almost impossible for the child under present existing conditions, to escape infection, because of the use in common of household utensils and articles, and close contact with those having infecting foci in their heads. This danger lies with all members of the household, but especially with the mother and nurse. From a lighting up of the infection in these older ones, in other words, having a "bad cold," go forth emanations of bacteria peculiarly prepared to infect, and the child will not long withstand such exposure, and it too begins to have "colds." Just so soon as the child becomes subject to recurrent colds we may be sure that the pus-germs have gained a foothold in that child's head.

How are we to protect the child in the best possible way? The best possible way is not in waiting for the child to become infected, and certain tissues become so infected as to require their removal (emergency treatment). Summed up, to be effectual, there are just two ends to be sought, first, getting rid of infecting foci; second, better body nutrition, and tissue resistance to germ life, in the child.

It is not my intention in this paper to go into the details of requirement, which embrace the question of (1) proper food, environment, and habits of the child; (2) prophylactic measures; (3) active measures, the work of the physician, the dentist and the surgeon for the extermination of already established foci. These active measures are ventilation, drainage, the possible application of germicidal agents, and the removal of infected tissue.

In this day of crisis, when men of strong bodies are needed, (I believe focal infection to be largely responsible for the forty to sixty-five per cent. of physical deficiencies among the applicants for the National Guard), can not and will not North Carolina, for the sake of her own people and the example set the world, take the initiative and through her public Health Board corral the forces of the Medical and Dental professions, and the people, in a fight against the greatest enemy that man's body has, namely, *focal pus-germ infection?*

DISCUSSION.

Dr. K. P. B. Bonner, Morehead City: As we have other business to transact, I move that the program be terminated at this point and that the writers of the rest of the various papers on the program be directed to hand them in to the stenographer or secretary, to be published in the Transactions of the Society.

Dr. Charles O'H. Laughinghouse, Greenville: I announce that the program will be terminated here, as we have some very important business on hand. Dr. Westray Battle and Dr. J. Howell Way and others have, through long and faithful service, come to that milepost along the road of service where they are entitled to be named as honorary fellows of this Society. A motion is in order to that effect.

MATERIA MEDICA AND THERAPEUTICS

SHOULD WE BE MORE CONSERVATIVE IN THE USE OF ARTIFICIAL PNEUMOTHORAX?

John Roy Williams, M. D., Asheville, N. C.

Pulmonary tuberculosis seems to have as many different treatments as "Carter had oats," and Carter is said to have had "some oats." We have nearly every possible form of treatment for this disease from a rational attack upon the cause of it, directly and indirectly, down to McDuffie's "garlic poultice." Somewhere in the list is found Artificial Pneumothorax, or Lung Compression, for which, by some, is being claimed the most wonderful results.

The origin of the idea seems to be a matter of debate. Murphy[1] says, "the principle of organ rest was first conceived by Carson of Liverpool, in 1821, when he advanced the idea that a diseased lung would heal more quickly if the lung itself were put at rest. He published a paper in 1822, detailing experiments on animals in which he produced an immobilization of the lung by artificial, or rather, surgical pneumothorax." Tuffier[2] claims that Potain, in 1888, was the first to attempt it for therapeutic reasons. Sloan[3] attributes compression to Carson by natural hydro- and pneumothorax, but gives credit to Forlanini, in 1882, for being the first to bring it about artificially by means of atmospheric air introduced into the pleural sack by a needle from without. Minor[4] agrees with Sloan, and disputes the right of the Germans to claim the credit for Brauer.

Murphy[5], in 1898, took up the work and, while he admits that Carson was the originator of the idea, states for himself and associates, "we take a pardonable pride, we hope, in seeing this method universally adopted, sixteen years after it was first advanced by us, as an effective treatment of tuberculosis." So, who is the originator of this treatment?

Carson believed that cases of tuberculosis which developed a hydro- or pneumothorax showed a tendency to a cure of the tuberculosis, and that it was due to a fixation of the lung. Spengler[6] later made the same claim; but Cornet[7] holds that Spengler's idea is not in keeping with the experience of most clinicians.

Artificial pneumothorax, according to Forlanini, is "putting an air-splint on the diseased lung." Sloan[8] says, "This is a mechanical treatment analagous to the application of the plaster cast to the broken bone to immobilize it." But is it analagous ? I do not believe it is. Compression tends to bring about blood and lymph stasis in the lung, and the plaster bandage that would do that would be improperly applied, causing a condition that would soon bring about its removal. The lung is very rich in blood vessels, most of which have the thinnest possible walls, and are very easily collapsible. When you compress an organ the size of the lung down to that of your hand, the circulatory disturbances which must follow hardly seem possible of being other than unfavorable to the health of the organ, or to a recovery from any disease which may be attacking it.

Bruns[9] says, at autopsy he found a compressed lung showing complete atelectasis, with stasis of the blood which remained venous. McKeon[10] reports the findings in an autopsied lung that had been compressed, showing a marked and peculiar congestion of the lung throughout. It was 6 inches wide, 2 inches thick, and extended from the dome of the liver to just below the clavicle. It was bound down by 8 tense bands of adhesions, which doubtless prevented it being more compressed. Was that a cure, or was it, in effect, an extirpation of the lung?

In tuberculosis our efforts should be to cure the diseased portion of the lung, and save the remaining healthy portion. Murphy[11] has likened the operation to that for appendicitis. In that he may be correct. The appendectomy does not cure the appendix, it removes it. Compression, in a very large number of cases, at least, may be analagous to the removal of a healthy ascending colon along with the diseased appendix.

Murphy[12] says that as soon as we find tuberculosis, we should immediately compress, just as when we find appendicitis we should immediately turn the patient over to the surgeon for operation. He advocated compression in the early cases; yet he says that Saugman reported 67 early non-complicated cases treated by compression, with only 17 cases well after a period of from sixteen months to three and a half years, which is a little less than 24 per cent. I believe that with hygienic, dietetic and medicinal treatment, without compression, we are doing very nearly three times as well.

Murphy says to compress the early cases, Sloan[13] to reserve the treatment for the more advanced cases. Others, and they are the majority of the compressionists, say do not compress until the patient shows no hope of recovery by all other means. Most compressionists claim it requires a knowledge and skill uncommon among physicians to properly

select cases for compression. Judging from the differences of opinion as to which are the proper cases for compression, one may believe it does require an almost superhuman skill and knowledge.

As for skill. From all I have been able to hear and read, along with a limited observation, the operation seems a very simple one. The simplest surgical skill, combined with the specially devised apparatus for the purpose, is all that seems necessary to perform the operation. As for knowledge, if we are to select the incipient cases, possibly a highly developed knowledge is necessary. But if we are to select the advanced cases, or the seemingly hopeless ones, I can not see where any special amount of knowledge is required.

Most compressionists say we should select the far advanced cases in which the disease does not extend down any further than the third rib in the other lung. Suppose we compress a left lung with an apical involvement in the right? The compressionists say "rest for cure," yet they seem willing to throw extra work upon this right lung which they hope to cure. Can we not expect (and most compressionists report it to be their experience) that the disease in this right lung will rapidly advance? I am pleased to find that Dunn,[14] along with a few others, cautions against this. But even if that other lung is not diseased, which is a very rare incident in the far advanced cases, will it not more certainly become emphysematous, which is not only undesired, but is also dangerous to the right heart?

What are the dangers of compression? There is the so-called "pleural reflex," to which has been attributed sudden death by some. Grey[15] says there is no such condition, yet Sundberg[16] reports two deaths from it, and one death from spasm of the larynx probably caused by the pleural reflex. Displacement of the mediastinum has proven very dangerous in a number of cases. Considerable displacement of the heart, with marked interference with its function, and a serious disturbance of the circulation, has been frequently reported.

Rapid evacuation of a compressed cavity has been reported as causing a spread of the disease to the other lung, with early death following. Pleural effusions are very common, occurring in not less than 60 per cent. of cases, if not more, as reported by nearly all of the compressionists. There is often perforation of the lung, nearly always followed by septic infection, producing a pyo-pneumothorax with its consequent deleterious effects. There is danger of infection from without during the operation; and it is thought by some that germs will pass from the lung into the pleural sac without perforation, especially in those cases where a high positive pressure is used.

Air embolism is reported as being a more or less frequent happening, proving very dangerous and, in a number of instances, fatal. Forlanini[17] reports a case of miliary pulmonary tuberculosis following compression, complicated with pericardial effusion and death. There have doubtless been other similar cases which have never been reported. Acute general miliary tuberculosis, tuberculous pneumonia, and tuberculous meningitis have followed the operation, and by many believed to have been due directly to it.

Lloyd[18] reports a case of pulmonary abscess which proved fatal, and which he was helpless to check. I can easily see how such a condition can be brought about. And pulmonary gangrene can easily follow, caused by the blood stasis in a lung that is infected by many pathogenic germs.

Diminished aeration of the blood, causing poorer nutrition, will produce a lower tissue resistance. There is also a general inflammation of both the visceral and parietal pleura, believed due to the irritation of the gas used, to disturbed circulation in the parts, and probably to infection in many instances.

The failure of the compressed lung to re-expand after the removal of the gas, or a complete adhesion of the visceral and parietal pleura after expansion, are both reported to be frequent occurrences. There is a marked and sudden interference with the pulmonary circulation, bringing about blood and lymph stasis, and greatly raising the blood pressure in the pulmonary artery. There is damage to the right heart, caused by the increased pressure it has to work against, by the pleural inflammation and adhesions, by the lessened aeration of the blood, and by the emphysema brought about in the uncompressed lung. And this dangerous effect is brought about when already the right heart is handicapped by the disease before compression is resorted to.

To my mind this seems a rather long list of reasons why we should be at least more conservative in the use of artificial pneumothorax. Are all of these dangers to be lightly considered? Are all of the supposed good results of compression due to it alone? To quote Webb,[19] "two cases which refused the application of pneumothorax, and whose condition seemed hopeless without the application of this remedy; and two cases in which we were unable to induce it, are now in excellent condition, walking several miles a day and with almost complete absence of expectoration." Does not this experience justify the belief that many compressed cases would have done just as well without it?

With compression it is claimed the fever is reduced, the cough and expectoration diminished. Certainly the fever is reduced, for with the blood and lymph stasis, absorption is made almost impossible. Certainly

the cough and expectoration are reduced, for the lung is placed in a condition making drainage almost impossible after the initiatory collapse of the lung. But is that a cure?

Is it worth while to deprive the blood of its necessary aeration; to bring about blood and lymph stasis; to keep up a poorer nutrition, producing lessened tissue resistance; to greatly overwork an already overworked right heart; to give the other lung, which is so often already diseased, from half as much more to double the amount of work to do; to take a chance of bringing about an extension of the disease to the uncompressed lung, in order that we may reduce the cough and expectoration? Should we be willing to take a chance of bringing about air embolism, perforation of the lung with almost certain septic pleurisy with effusion, tuberculous pneumonia, tuberculous meningitis, acute general miliary tuberculosis, sudden failure of the right heart, sudden death from pleural reflex, or from spasm of the larynx, for the still unproved good results of compression in a still very limited number of compressed cases?

The reports of cases treated by compression are very interesting to say the least. They claim from 0 per cent. of cures to 100 per cent. They claim improvement in from 18 per cent. to 92 per cent. This seems a very wide variation in the results obtained, and justifies the belief that, at best, the reports are vague, ambiguous and misleading.

The reports show some compressionists claiming no effusions in their cases, while others report 100 per cent with effusions. Baldwin, and his coworkers at Saranac, claim 100 per cent. effusions in their cases. Peters believes that with time from 90 per cent. to 100 per cent. will show effusions. Bullock[20] claims to have had but one effusion in all his cases, and that one with a beneficial effect. He attributes it to the wonderful climate of that portion of the West in which he operates. This seems an extraordinary virtue for climate, of which I have never heard before. You may remember that he is the man who claimed that none of us east of the Mississippi can point to a single cure of tuberculosis two years after discharge from treatment. He might be placed along with Marpham, who claimed to have grown dead tubercle bacilli in pure culture. It is a case of "he may be right, but I doubt it."

Hamman[21] says that after compression, the lung very often fails to reëxpand. Mannheimer[22] says, "We can never know whether the lung will reëxpand." Sloan[23] says that "after reëxpansion, a complete fixation of the lung to the chest wall occurs in some cases, from pleural adhesions brought about by the effects of the gas on the pleura." Are these desirable conditions?

Julian[24] writes me saying, "At present I cannot commend the method as fully as I would like." Homan[25] writes, saying, "I have never been very enthusiastic about the operation." Thompson[26] writes me that "he feels sure the pendulum will slowly swing back to a more conservative basis in the use of artificial pneumothorax." Pierce[27] writes me that "it is not to be used indiscriminately."

Sajous,[28] in writing of the treatment of pulmonary hemorrhage, states, "In hospital and sanitarium practice, also in large cities, we have a much more certain and safe remedy in compression of the lung by gas injected directly into the pleural cavity." He also writes, "In profuse hemorrhages, where the pressure need be only temporary, oxygen gas as found in the markets will be all that is required, as ere it is absorbed a clot will be formed." James,[29] in writing of compression in the treatment of tuberculosis, in conclusion states, "This method was practiced for several years, but has now been generally abandoned."

So far as artificial pneumothorax in the treatment of tuberculosis is concerned, I admit I may seem to be rather pessimistic. I shall want a more uniform report of the results obtained, and better reasons for their having been obtained than have yet been furnished. I do believe, however, that the operation is clearly indicated in cases of uncontrollable hemorrhage, where all other means have been exhausted, and the life of the patient seems in imminent danger. Here the compression needs not be kept up long enough to bring about many of its dangers. Here it is an emergency measure, and seems rational and justificable. This is in keeping with the opinion of Sajous, who I do not find advocating the operation for any other purpose.

Many compressionists say that the operation is dangerous, requiring great skill and knowledge. I agree with them that it is dangerous; not, however, because of the necessity of an almost superhuman skill, but because of the direful results in such a large percentage of cases. Even by those to whom the greatest skill is attributed many disappointments are admitted.

We are warned against over-enthusiasm by many compressionists. Is it because they have found it not to be wonderful life-saver after all? Is it because they have had so many accidents they are wanting to see the pendulum swing back in the other direction? Is it because they believe the consumptive already has enough trouble without adding compression to his depression? It may be better to pay more attention to the cause of the disease, the tubercle baccillus and its usually associated mixed infection, and a little less attention to the symptom complex, except in so far as it may aid us in making an early diagnosis and directing us in our fight against the cause.

A more or less extensive experience with the tuberculous, covering a period of about thirteen years, has brought my mind to the point where it dictates that early diagnosis, hygienic, dietetic and medicinal treatment, and careful general management of the case, is the safest and surest cure of pulmonary tuberculosis. I present this paper with the hope that it may assist in turning the pendulum on its backward swing, and that it might deter from the indiscriminate practice of compression that is being followed by some today.

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THE EFFECTS OF THE CONTINUED USE OF OPIATES ON THE HUMAN SYSTEM.

W. C. Ashworth, M. D., Greensboro, N. C.

It would be well for me to say in the beginning that by the use of the word "opiates" I mean any of the various forms of the drugs that are made from the juice of the poppy (the Papaver Somniferum), as gum opium and laudanum and paregoric; the numerous alkaloids, as morphine, codeine, etc., and the derivatives from the alkaloids, as dionin and heroin. (Can I stop here to enter a protest against the use of these drugs—dionin and heroin—in such chronic diseases as asthma, bronchitis, etc.? Heroin especially has been said by many good authorities to be a no-habit forming drug. This is not true, if given in any chronic disease for a period of six weeks or more it produces a habit just as bad, if not worse, in its effects than that produced by morphine.) I want to include, too, all the various methods of taking these drugs: the smoking of opium in the pipe and chewing gum opium; the taking of laudanum by the mouth, and the use of the various alkaloids in the hypodermic syringe. The use of the syringe has added enormously to the number of opiophagists. The first alkaloid (morphine) was separated from opium about 1817 by a German chemist (Serturner), but it was not used in the hypodermic needle until 1839 (in New York by Drs. Taylor and Washington) and did not come into general use until about 1870. I believe Tiemann made his first hypodermic syringe in 1856. This was copied from one brought from Edinburg by Dr. Fordyce Barker. Of the opium-eaters I have known (about 200 or 300) at least 95 per cent. were using morphine with the hypodermic needle. The others were continuing to use it in the way they were first taught; for instance, I knew a woman who learned to use laudanum because it was given her in the form of an enema to control a chronic dysentery. She remained an "opium-eater" for more than twenty years and never took it in any other form save laudanum in enemata. If the increase of taking it is gradual enough I do not suppose that there is any limit to the amount of opium, laudanum or morphine that an opium-eater might take in twenty-four hours without doing himself a serious injury. I have known a woman who took 120 grains of morphine by mouth every twenty-four hours. She had kept this up for several years. I knew two doctors (father and son) who each took hypodermically 100 grains of morphine and the same amount of cocaine every day. They sat by each other all day, giving each other hypodermics. They hardly had

time for anything else. They both took treatment and made good recoveries. It is generally held that there is a physiological limit in every one as to the amount of morphine that the system will take up and utilize—the rest of the morphine is eliminated by the bowels, liver, kidneys, and in various other ways. Dr. Jennings, of Paris, places this limit at twelve centigrams—or a little less than two grains per day. I think Jennings is very reliable in anything he has written about the disease of opium-eating and its treatment, but I believe he places this limit entirely too low. It differs very much in different patients. With the average patient I would place it at thirty centigrams per day—I do this because with patients taking any amount (twenty to forty grains of morphine per day), with free elimination through the bowels, you can reduce them in three or four days to thirty centigrams with scarcely any suffering.

In a study of the effect of the continued use of opiates on the human system we had best take it from three different standpoints: (1) its physical effects, on the body; (2) its mental effects, on the mind; (3) its moral effects, on the soul. Of course, our effort is to understand the chronic effects of opiates, but I am certain that we will understand these better if we glance briefly over the physiological action of a single dose, and also consider the symptoms produced by a lethal dose. We are told by one of the materia medicas that "opium is a stimulant, narcotic, anodyne, antispasmodic and intoxicant." When given by the mouth it has much more effect in checking all of the secretions of the intestinal tract than when given hypodermically. It also checks the peristaltic movements of the bowels; it acts by stimulating the inhibitory nerves of the intestines—if given in excessive doses it may paralyze these nerves. This is why occasionally constipation is followed by exaggerated peristalsis and free evacuation of the bowels. Without exception, from the mouth to the anus, it checks all secretions and excretions. Of the numerous alkaloids, morphine is the only one that has this decided effect on the bowels. Papaverine comes next; narcotine is much feebler; narceine and codeine have almost no effect, while thebaine excites violent intestinal contractions.

Morphine is eliminated by the saliva, through the stomach, by the bowels, the skin, and kidneys. It is eliminated slowly. After one dose morphine may be found in the urine for several days, so that the drug is accumulative in its action. (There is so much morphine in opium —from 12 to 14 per cent.—that observations recorded of one apply to

the other.) In confirmation of the accumulative action of opium, I have observed in withdrawing it from the habitue that the acme of suffering comes on just about forty-eight hours after the last dose is given.

ON THE BRAIN AND NERVOUS SYSTEM.

In order to produce its characteristic effects, opium must be absorbed into the blood and carried to the motor, sensory and higher nervous centers, and to the terminal end-organs of nerves. Having been carried to the brain and cord, the functions of the ganglion-cells are at first stimulated, and, secondarily, depressed or inhibited, probably owing to the salts diffusing through the cell wall and entering temporarily into combination with the protoplasm. The single dose of opium relieves pain in almost every one, but its other effects differ decidedly in different people. Some are mentally and physically depressed, with decided nausea, and otherwise disordered stomach, and headache and constipated bowels; but in the majority there is exhilaration and increased cerebration, with a sense of quiet, calm, happiness and indisposition to sleep until the effect passes away. Itching of the skin (pruitus opii), especially of the nose, is a very common symptom of the single dose or of many doses. After a dose of any size the pupils are contracted and do not respond to light. Infants and children are supremely susceptible to the influence of opiates, and an overdose is far more apt to produce convulsions than in the adult.

Probably there is no drug in the pharmacopoeia in regard to which so many idiosyncrasies are displayed by patients. Instead of quieting, it may in some increase nervousness and restlessness. I have seen one patient in whom a dose of opium or morphine would invariably produce violent colic. In rare cases (more apt to occur in women) a small dose may produce dangerous symptoms of collapse. In experimenting on cats a dose of morphine or opium always produces convulsions. This effect is very rare in an adult human being.

The fatal dose of opium (varying much in different people) is put by Pearce at from three to ten grains of the powder, and at one grain of morphine. Shoemaker, in his "Materia Medica," tells of one-half ounce of laudanum given in an enema killing a patient who was suffering with typhoid fever. In the child one drop of laudanum has brought on dangerous narcosis, two drops have proven fatal through coma and convulsions. The onset of the symptoms from a poisonous dose is rather slow; dangerous symptoms may be two or three hours developing after the ingestion of the drug. The desire to sleep is beyond the patient's control; both the circulation and respiration are slowed; the heart beats forty or fifty times to the minute; the respiration falls ten or twelve to

the minute; and as death approaches becomes much slower; the face is pale; the lips are blue; the skin is cold and clammy; the pupils are contracted to a pin point and do not respond to light. The patient becomes comatose; the breathing is generally stertorous; all secretions are checked, save a cold, clammy perspiration. With a gradual increase in all of these symptoms, death occurs in six or seven hours from exhaustion. Whittaker states that three-fourths of the deaths from opium occur under five years of age. Most cases of poisoning in adults occur in opiophagists who recommence the habit with too large a dose.

In considering the effect of the habit of opium-eating on the body of the habitue, it is very difficult to make any general statement because these effects vary so much with different individuals. If I make any general statements you must know that I recognize the fact that there will be many exceptions. In the East, where the habit has become almost a national disease, it seems to have a less deleterious effect on its habitues than it does on those of the Caucasian race. It is an undoubted fact that a good many people take some form of opium for years without its having any bad effect on them; without their nearest acquaintance finding it out. The husband may take it a good many years without the wife finding it out, and vice versa. My remarks and observations in this paper will be founded on a study of between two and three hundred habitues that I have known. With the exception of the effect on the teeth, I do not believe that there is any organ or portion of the human body upon which opium has a permanent effect; that is, I believe that within six months after the drug is stopped all the symptoms will have disappeared. But, it matters not what form of opium is taken, it seems to hasten the destruction of the teeth, and with every treatment taken for the reduction of opium, the habitue is, from violent pain therein, almost sure to lose one or two teeth. From the close relationship between the hair, finger nails, skin and teeth, it is possible that the continued use of the opiates may have some permanent effect on the other three as well as the teeth. Opium may have some effect in producing permanent baldness; there is so much baldness, even in the young, these days that I will have to make further observations before I can say. The finger nails, I know, are brittle and grow with unnatural slowness. When the opium is stopped they grow very rapidly again. Authorities differ as to the effect on the skin. Some say that under its influence the skin is hard and dry; others that it is cold and clammy with sweat. We doubtless have both—but very often it is healthy.

I will draw the classical picture as given by such men as Osler in his "Practice," and Shoemaker in his "Materia Medica." All other writers on these two subjects seem with them to have followed the old writers

with very little study of the subject themselves. If this picture is ever true there are many and numerous exceptions to every statement made therein. "The opiophagist is an inveterate and habitual liar; no reliance whatever is to be placed on his statements; his moral nature is so destroyed that he may be classed as an amoral. There is sallowness of the complexion that is almost pathognomonic; he becomes emaciated, gray and prematurely aged. There is anorexia and great disturbance of the digestion; he is at times restless, irritable and unable to remain quiet. The *pruritus opii* is a common symptom. Sleep is disturbed, and save when under the influence of the drug the mind is depressed. At other times there is mental hebetude and vacillation; the habitue has no ambition; he is indecisive; sits and dreams in 'dopy' condition for hours; there is impotence in the man and cessation of the menses, with sterility in the woman. If the drug is taken away from him, he will lie, steal, do anything to get it, but being without it for eight or ten hours withdrawal symptoms come on. We have yawning and sneezing and then lassitude, mental depression, slight nausea and epigastric distress, with diarrhoea. If the drug is still longer withheld, there is profuse perspiration, with violent vomiting and diarrhoea; horrible mental distress with complete collapse and death from exhaustion. As time rolls on, the dose has to be constantly increased, until finally the system refuses to absorb the drug, and death occurs from general debility, combined with intense suffering." This is the classical picture given by almost every text-book. It is only partially true. They seem to have combined the worst symptoms of each individual and written as if they all had occurred with but one habitue. To get at the truth I can only take the various parts of the body separately, and tell of the effects of the chronic use of opiates on them, and the many times they fail to have an effect. Pin-point contraction of the pupils is the most constant symptom of which I know. I have not known a single exception. This minute contraction always interferes with sight, especially at night. When a normal person goes out at night the pupils dilate largely; this, by letting in more light, enables him to see much better, but the opium-eater's pupil does not respond to light, or its absence, so that even a bright starry night appears very dark to him.

In the habitue, all secretions and excretions, save the perspiration, are more or less checked. (There are not many exceptions to this, that is, all habitues do not have all secretions and excretions checked, but all of them have some of them interfered with.) Therefore, the majority of them suffer with various forms of indigestion. The normal hydrochloric acid of the stomach is formed in excess; the flow of bile from the liver is subnormal in amount; the natural secretions of the bowels are so

checked as to create a severe constipation (this is added to very much by the checking of the natural peristaltic movement of the intestines). This continuous constipation produces a very severe form of piles.

From this interference with the proper digestion of food we have a thinning of the blood, which produces a general appearance of anaemia. The whites of the eyes take on a bluish, yellowish discoloration; the skin shows an unhealthy whiteness, slightly tinged with yellow, and the victim is apt to lose weight. But there are many habitues who, after fifteen or twenty years' use of the drug, exhibit very few of the symptoms of indigestion; they are full-blooded and plethoric, with a natural, healthy color in their faces and, undoubtedly, they are good, healthy trenchermen.

In many habitues, not all, probably not over half, there is disturbed sleep, and in those in whom this occurs, it is caused by their taking too large a dose too late at night. They will be waked many times each night by disturbing dreams. They will wake with a start to stay awake only a few minutes, go to sleep and repeat the performance many times during the night. This does not occur in those who have learned to avoid the large doses too late at night.

The constant use of opium diminishes the flow of urine; there is "urinary stammering," that is, the user frequently has a difficulty of starting the flow; after the start, it is voided without further trouble. Some authorities state that opium increases the excretion of urea. I have frequently found the specific gravity of the habitue's urine to be as high as 1035 deg. to 1040 deg., without a trace of sugar. But on account of the diminished flow of urine, I rather suspect that the amount of urea passed in the twenty-four hours is less than normal. Whittaker states that the habitual use of opium frequently causes albuminuria. This has not been my experience.

In regard to "impotence in the males with cessation of menses and sterility in the females," my experience leads me to qualify these statements a great deal. I have known many males who, after fifteen and twenty years' use of the drug, had not lost their sexual desire or power. I have known women to bear children after ten and twelve years' use of the drug. (I must here call attention to Dr. Petty's statement about these children; they are opium-users when they are born, and if the proper amount of morphine is not given them, they will surely die in a day or two.) I have known a doctor and his wife, both users of the drug, who were parents of five children, every one of whom died in a few days after birth. Certainly the constant use of opium diminishes the sexual desire in the majority of people, and, as old age comes on, stops it entirely, sooner than it would be stopped by old age alone.

In withdrawing the drug by the gradual method, even while the withdrawal is going on, some of the habitues—both men and women—go almost insane from the intensity of the passion that develops at this time.

Opium is one of the most steady and powerful heart stimulants in the materia medica. In my opinion this is the chief cause of the effect of opium on the brain. The heart bathes the brain cells in bright arterial blood; there is a rapid and continuous flow of ideas; all physical pains, all mental troubles are forgotten; there is quiet and peace and happiness such as the victim has never experienced before. To the habitue, beginning his habit, this first delightful effect of the opiates may last for months or even for several years. (This varies greatly in different people. I think it depends chiefly upon the rapidity with which the dose is increased. The slower the size of the dose is increased the longer the happy effect will last.) After this, there comes to every opium-eater the feeling that he is a victim; that he is caught in a trap from which there is no escape. It matters not how much he increases the dose, it no longer brings him happiness. He only takes the drug now to avoid the horrible suffering that stopping would bring, and to try to keep his system in a normal condition so as to be able to do his daily work. What has brought about this change? Opium is still acting as a powerful heart-stimulant; the brain is still full of blood; but the blood has changed. It is no longer the bright arterial blood, full of fresh oxygen and food for the brain-cells, but venous blood whose every stimulating material has been used up by the body before it gets to the brain. Authors (like Coleridge and De Quincy), who have become victims of this habit, have written brilliantly for several years under the first influence of the drug; then, as the habit increased, they have written less and less, until finally there is complete silence.

Yet the average individual is able to keep up and does keep up his daily work after using opium for years. The large majority of physicians who come to me for treatment for this habit have left behind them a large practice, to which they have attended despite the fact that they have used opiates for years.

In using the word *soul,* I mean the higher nature of man; that part of him that makes him avoid the wrong and do the right. And in considering the effect of the continued use of opiates upon this part of man, I must vehemently protest against the statements that are made in almost every text-book that the "opium-eater is an inveterate liar, etc.; that his moral nature is so destroyed that he is an amoral," etc. In looking carefully over the characters of the numerous habitues that I have known, I must positively state that there were a number of them

who were really *high* men. I mean by this, men far above the average in morality whom you could trust in any position; to whom you could lend money and get it back; with whom you could trust your wife, although she was somewhat gay, and get her back untouched; men who did their duty in every position in life.

It is probable that every habitue will lie about his habit; and if it is true that the average habitue will lie more than the average man, it is probably due to this fact: that it is hard for a person to lie habitually on any one subject without the practice spreading to other subjects.

The worst harm that the drug does to the habitual user is the hold it gets upon him. Without outside help he cannot give it up; he is the slave of a powerful monster. No one knows better than the real habitue that when the test really comes (if it ever should) that he must place the drug above his wife, his best friend, his father, his mother, his sister, and his brother. The agony of giving it up is so great that the drug is placed above them all.

The opiophagist is drawn from the best class of humanity; the vast majority of them are educated men and women who have known culture and refinement. In my experience they are intellectually far above the average.

> "Is it true, O Christ in Heaven, that the highest suffer most?
> That the strongest wander farthest, most hopelessly are lost?
> That the mark of rank in nature is capacity for pain?
> That the anguish of the singer makes the sweetness of the strain?"

OBSTETRICS

THE ELIMINATION OF IGNORANT MIDWIFERY: EITHER ITS EDUCATION, LICENSURE AND SUPERVISION, OR ITS SUPPRESSION.

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During a general practice of ten years' duration I have been convinced that the elimination of ignorant midwifery is a matter that merits the serious consideration of all thinking people. I have in that time seen enough of puerperal sepsis, puerperal eclampsia, unrepaired lacerations, infected eyes and infected cords to encourage me to accept this opportunity to advocate remedial measures in behalf of those whose health and lives are thus jeopardized. To the profession that has made such wonderful strides in the process of evolution as has marked the history of medicine in the last quarter of a century it seems rather inconsistent to permit the perils incident to the practice of *incompetent* midwifery to longer go unchallenged. When half of the confinements of the country are attended by women who know nothing of the principles which safeguard their patients; when statistics show that the results of the trained and educated attendant are far superior to the life and health of the nation than the results of the ignorant and untrained, there appears for the physician and social worker little else to do but to work for the eradication of the evil.

The institution of midwifery is as old as the human race. It antedates the practice of medicine by centuries. Over the masses of the world its dominion has existed from the beginning of civilization. Its high repute in ancient times is evidenced by the fact that Socrates' mother was a midwife. Its good repute in more recent times is indicated by the record that Queen Victoria was ushered into the world by a member of the profession. Its acceptable repute in most recent times is affirmed by the report that your mother and my mother were attended in deliveries by nonmedical individuals. But, while it has been an indispensable factor in the accouchement of the human family and is thoroughly incorporated in its social fabric, in this age of practical application of scientific knowledge the present status of midwifery must yield to the advent of modern obstetrics.

Prior to the aseptic era there was but little difference between the midwife and the physician in point of service to the parturient woman. Perineorrhaphy was usually done by nature. The relation between the streptococcus and puerperal fever and the relation between the gonococcus and ophthalmia neonatorum were unknown. The principles of hygiene, asepsis and antisepsis, so essential to the protection and care of the child-bearing woman and her baby, were unavailable. But with the dawn of that epochal era the physician, as a rule, awoke to the needs and possibilities of the times, while the midwife remained content in the tranquil dormancy of antiquity. There arose a rapidly increasing demand for preliminary education and for a higher degree of technical skill on the part of the physician. There became a law to require him to attend some reputable school of medicine for a definitely prescribed course. He must master the science of obstetrics while mastering the other branches of medicine. It is necessary for him to be licensed by a state board of examiners before whom he is required to prove in a general, final test that he has acquired a general and substantial knowledge of the science he has chosen to practice.

On the other hand the character of midwifery as it exists today is the same, except in certain European countries, that has existed since the earliest times. As a class they are both dirty and ignorant, and in the basic principles of the art which they attempt to practice they are without any training whatsoever. They know nothing of hygiene; they care nothing of asepsis or antisepsis, and at their best they form truly a menace to civilization. Except in a very few localities any woman may follow the profession of midwifery unsupervised and unrestricted, no matter how deficient in education, training and experience she may be.

To my mind this anomalous condition is absolutely preposterous. "What is sauce for the gander should be sauce for the goose."

I need not tell you that 45 per cent. of the total blindness in this country is due to the lack of proper preventive measures at birth; that the homes for crippled children are filled with inmates maimed for life as a result of ignorant midwifery; that the great majority of stillbirths are due to faulty service of the attendants; that an untold amount of suffering and invalidism among the mothers of this country is traceable to ignorance and neglect during and following childbirth.

The Children's Bureau of the Federal Department declares that more women are dying between the ages of 15 and 45 in the United States from conditions incident to maternity than from any other cause save tuberculosis. It states that since 1900 the death rate from tuberculosis, typhoid fever, diphtheria and certain other preventable diseases has been greatly reduced, while the available figures for the death registra-

tion area show no decrease in the proportion of mothers whose lives are yearly sacrificed in ignorance and improper care in childbirth. Hence it must be apparent to every intelligent person that the anomalous condition which exists in this country is nothing less than disastrous to the birth rate, health and progress of our people. Its correction I regard as an imperative necessity. For if we are to prevent infant blindness and mortality and the various other calamities incident to maternity which we know may, in many instances, be prevented through careful and intelligent attention, we must have the work which is done by ignorant midwives done by trained and intelligent women.

Among a large class of persons who are otherwise fairly sensible there has grown up a feeling that the hazards incident to maternity are inevitable, that the mother must take a soldier's chance. I charge that those mothers who surrender their lives unnecessarily in this age do not surrender it any more to ignorance than they do to the amazing lethargy of the communities which fail to provide, or even attempt, suitable care of mothers. Is not the lack of agitation for a concerted movement for the betterment of our midwife conditions indicative of a concession by the medical profession and the laity that the present midwifery has a moral right, if not legally recognized, to remain in ignorance and incompetency as one of our civilized institutions? Shall inadequate midwifery live because of the inability of the poor to pay for efficient service during parturition? Cannot the State provide suitable service in such cases as an insurance for living, healthy mothers and living, healthy children? There can be no better economics for any commonwealth than that obtained by providing suitable service, free or at a nominal cost, to those unable to pay for it. For healthy mothers and healthy babies are an asset to the State, whereas sickly ones are a liability—a serious drain to both life and happiness—and dead mothers and dead babies are a dead loss. Whenever a midwife is not as capable as a well-trained obstetrical attendant her service is costly to the State if cheap to the individual. Bad obstetrics means a high mortality rate; it means chronic ailments incapacitating, often, for life; it means needless, if not criminal, blindness.

In the practice of obstetrics the usefulness of measures to guard against impending disasters is second to no other branch of medicine. Prenatal instructions, such as teaching mothers how to care for themselves and their unborn infants, is the buoyant spirit of prophylactic obstetrics. The practical value of such teaching has been demonstrated by the work of visiting nurses, carried on under the auspices of nurse associations, hospital social service bureaus, health departments, and other agencies. The few available statistics on this subject indicate that

the deaths among infants and mothers who have had prenatal care and instruction as to the hygiene of their lives are approximately 50 per cent. less than among unsupervised and untaught mothers in the same class of society. In their present state of unenlightenment we cannot look to our midwives to do this important work. Can we ever expect these women who, as a rule, are old, ignorant and superstitious, to be instrumental in doing prophylactic work? The time must come when every woman shall have care during her pregnancy as surely as she shall secure it at the time of her delivery. Perhaps the strongest argument in behalf of the abolition of incompetent midwifery today is that its practice is not in accord with modern tendencies of medicine, where prophylaxis is the watchword and where preventive medicine is the battle-ground on which the physician must achieve his greatest victories.

Believing that prenatal endeavor is the corner-stone of life, numerous women's leagues for social service are doing extensive prenatal work throughout the country. Employed by these agencies are corps of well-trained nurses whose duties are to keep by frequent visits close observation of expectant mothers, and, on the development of unfavorable symptoms, the patient is sent either to some hospital or to her family physician. No more than ten days are permitted to pass without a visit by the nurse, and in case of threatened trouble the nurse goes as much oftener as is necessary. There is given advice with regard to clothing, exercise, fresh air and diet. In the line of medicines she may prescribe laxatives only. In thickly populated communities one nurse has been able to care for over 1,000 patients in this thorough way. During the existence of some of these leagues the percentage of cases of threatened puerperal eclampsia has decreased from 10.5 per cent. to four-tenths of one per cent. The percentage of miscarriage has become very low—only two-tenths of one per cent., as against the average of 15 per cent. Premature births have decreased to 1.21 per cent. The average length of time the patients are under the care of the leagues is three months, but every one encourages and prefers having them as early after conception as is possible. The cost of this care has been from $2.50 to $3 per patient, and the patients in many cases are encouraged to pay this themselves, knowing that a self-respecting person is a much more useful citizen than a dependent one, and that a self-supporting organization is much more valuable than one carried on by charity.

The process of elimination of the ignorant, sloven and unfit from the ranks of midwifery has been going on in Europe for several years. There, as here, the profession is deeply rooted in its civilization and its immediate eradication for traditional and social reasons was found infeasible. While unable to abolish the institution at the present time

it has felt the necessity of minimizing the danger to the public by making provision for the training, supervising and controlling of midwifery by government authorities. Germany, Holland, France, Belgium and Italy require and give a full two years' course of training to their midwives; Norway, Sweden and Denmark, one. They are carefully trained by the respective governments in well-established clinics, usually by university professors. All are rigidly examined before licensed to practice, and their duties and limitations are by law clearly outlined.

In 1902, England, by the establishment of the Central Midwives Board through an act of Parliament entitled, "An act to secure training of midwives and to regulate their practice," announced to the world that she had joined the ranks of those nations which were considering the midwife problem to be of national importance and would henceforth strive to give to her women at the supreme moment of childbirth all of the protection and care that modern, scientific methods of midwifery afforded. The high standard sought for the training and examination of her midwives has resulted in the elimination of the uncleanly and incapable and secured for the profession a higher class of women. She now has well-trained graduates of standardized schools of midwifery, and numerous nurses are beginning to recognize the reputableness of the institution or profession as manifested by an increasing number annually entering into its service. In England the Central Midwives Board is invested with supreme authority in matters pertaining to the training and licensing and supervision of midwives. The training required is given by institutions recognized by the Board as instructing schools for midwives, and no woman can practice the profession without first having a diploma from one of these recognized training schools, a certificate as to her moral character and a license issued by the Board. The Board has established rules by which England's midwifery is governed and those rules are enforced in every community through the agency of local supervising authorities which are the counties of the country.

In America several states have begun a movement for the improvement of their midwifery conditions. New York was the first state to establish a school for the training of midwives and, so far as I know, is the only state in this country that has a school for this work. It gives a six months course of training to its students. Other states, however, are showing an unmistakable unrest and dissatisfaction with the evils of present conditions, and in a comparatively short time there will be similar schools in operation within their own boundaries. The same humane progress must eventually be taken by our own State, and

let us hope that our commonwealth will not be slow in awakening to the spirit of the times and institute this reformation so vitally needed for the welfare and progress of our people.

But in America the problem presented by the exigency of midwife reformation appears on study to reveal conditions more complex than were found in Europe. The execution of any educational plan depends largely upon the material with which we have to deal. The education of previously ignorant and untrained women to be efficient midwives in a course of a few months instruction is impossible. In Europe compulsory education has elevated the mental capacity of the masses, from whom the candidates for the practice of midwifery evolve, which enables the system for the betterment of their midwives to be more successfully operated than in the states of America where educational requirements and attainments are comparatively insignificant. Here only the most intelligent midwives and graduate nurses from training schools of good standing are capable of becoming in a few months course of training safe and efficient attendants upon cases of normal labor. Upon this class, and upon this class only, could we depend for a realization of their limitation and for promptness of calls for professional aid in cases of emergency.

But the great end of this reformation is the elimination of all midwifery. If obstetrics has any right to a place with surgery, gynecology, pediatrics, etc., if its correct practice requires the wide knowledge and the skilled technique of the educated physician, if modern science has placed it on a coördinate plane with the other branches of medicine, the proper solution of the midwife problem is not, after all, her education, but her total extinction. Improve her as much as you can; train her as her capacity will permit; but never forget the great end to be attained is her complete abolition.

Immediate legislation is needed. There should be a State law investing the State Board of Medical Examiners with authority to regulate all midwives practicing within the State. Such a law is needed to control the situation until the midwife is made a superfluity through the education of the masses to good obstetrics. The State must have facilities for training and educating its midwives; it must have provision for examining and licensing them; and they must be supervised and controlled by the Government if mastery of the situation is to be obtained.

In any process of reformation, no advance can be made without strong public opinion, and to create this it is necessary to know the facts. A campaign of publicity which shall educate the lay public as to the deficiencies of present day obstetrical practice and the need of refor-

mation must be instituted. Just so soon as women learn that their safety in childbirth depends upon having trained, skillful care, just so soon do they seek the service of the educated, well-trained physician at this time. Once they have seen at work an excellent obstetrical attendant, the preparation of the patient and bed, the painstaking cleanliness, the use of sterile rubber gloves, the care of the baby's eyes, etc., an object lesson has been received that makes them forever dissatisfied with careless, dirty work in confinements. This will require conscientious effort by physicians and social workers to let every family know the benefits of good obstetrics and the possible harm of faulty accouchement to interest the masses to make the change. It will behoove every physician to do his best in a conscientious effort to raise the standard of obstetrics to a higher plane that it may be accorded a greater respect than at present received. Each mismanaged case lessens the public's confidence in our ability to do creditable work and furnishes an excuse for the existence of midwives. On us as physicians, therefore, rests most of the responsibility for the enlightenment of the people and the provision for the proper care of all pregnant women.

In country communities there should be a gradual abolition of midwives by the substitution of visiting and obstetrical nurses; in cities there should be the same gradual extinction by the replacement of obstetrical charity hospitals with the obstetrical visiting nurse feature incorporated. In both municipal and rural communities a vast saving of fetal and maternal life and health can unquestionably be effected by developing an obstetrical visiting nurse system and by educating the poor to make more extensive use of obstetrical charity institutions instead of relying on poorly trained or untrained midwifery. Poor women in fairly well-conducted hospitals usually receive as good care, and often better, than the well-to-do in their own homes. Foster such agencies as women's leagues for the betterment of social conditions, prenatal nurses association, maternity hospitals for the poor in and near our cities, and other similar organizations or institutions, and we shall erase from our civilization the besmirching blot of an antiquated, dilapidated, and perilous system of ignorant, filthy, and incompetent midwifery. Disseminate the full facts throughout the State regarding proper obstetrics, educate the general public to understand why every pregnancy should, both for the interest of the State and for the good of the family, be supervised, labor scientifically conducted—neither of which can be accomplished by nonmedical attendants—and the people of the State will,

in one way or another, place the means of obtaining modern obstetrical service at the disposal of all communities; and then, with or without laws against the midwife, she will disappear from our rural and municipal vicinities, and become, like alchemy, witchery, and slavery, a relic of the past ages of ignorance.

A PLEA FOR A MORE CIRCUMSPECT OBSTETRICAL PRACTICE.

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The last few years have witnessed wonderful progress along certain lines of obstetrics, especially the surgical side, and great have been the results. Numerous Caesarean sections have been done with a wonderfully low mortality. Some have used the operation in several conditions, viz., placenta previa, eclampsia, and accidental conditions, especially where there is much hemorrhage. I most heartily approve of the knife when it is positively indicated; but are we in our enthusiasm and mad rush after the surgical side of the profession neglecting the fundamentals of obstetrics, the proper knowledge and application of which would make obstetrical surgery unnecessary oftentimes? We still occasionally see puerperal infection, ruptured uteri, undiagnosed presentations, and we also see cases where forceps have been applied without a knowledge of the relative proportions of the passage or the passenger and consequently much harm done. It was my unhappy lot to be called to just such a condition some time past in which the child's head was wedged down within the brim of the pelvis which would not permit of its passage, and as a consequence both mother and child died soon after my arrival.

It is admitted that pelvimetry does not always tell whether a child can be born or not; the angle of junction of the bony parts may be such as to not permit of the passage of the child regardless of the large pelvic measurements. However, careful pelvimetry reveals much, and if carefully carried out during pregnancy you will have but few embarrassing surprises; and by this the possibility of dystocia will usually be foretold and provided for. Pelvimetry is a part of conservative obstetrics, as it will foretell many abnormal conditions, and consequently keep your feet out of the mire many times.

You will all agree that it is absolutely necessary to make regular urinalyses in every pregnant case, but how many of us do? Do we

make urinalysis every month up to the seventh and every two weeks thereafter, and oftener if any abnormalities are found? If we do not, we are not doing our duty as obstetricians. There is so much to be learned by careful, painstaking urinalysis that it becomes imperative in all cases.

Toxemia of pregnancy is now generally believed to be caused by a disturbance of nitrogenous metabolism. We also believe that this disturbance of nitrogenous metabolism is a failure of the oxidizing capacity of the liver, and that the protein derivatives, which were formerly combined by the liver into urea, are no longer thus combined, but circulate freely in the blood as poison and are in some degree excreted by the kidneys. We also believe that the condition known as hyperemesis gravidarum, eclampsia and acute yellow atrophy are one and the same thing. We believe, too, that this failure of oxidation in the system can best be determined by a study of the nitrogenous partitions in the urine, and by observing that the nitrogen passed is not in the form of urea, but in various precedents of this substance, the most common of which are the ammonia and amide substances. It is necessary, in order to determine this change in urine, that a twenty-four hour specimen be taken, and it must be known what diet the patient has taken; for on a full diet there will be about 85 per cent of urea nitrogen in a normal individual, whereas on a low, scant diet, such as these patients usually take on account of nausea, the urea nitrogen may fall as low as 50 or 60 per cent. Therefore we observe that this disturbance of nitrogenous metabolism in the liver does not always lead to a diminution in the total amount of urea excreted, but to a diminution of the ratio between urea and the total nitrogen in the urine.

In view of this discovery it appears that we must, when examining urine, look not so much to the loss of urea as to the excess of ammonia for the danger signal, for we know that marked increase of this ammonia coefficient in cases of pernicious vomiting indicates the existence of a most serious toxemia which, if untreated, will be accompanied by lesions of the liver and other organs which bring us face to face with a most serious consequence. Under such circumstances I unhesitatingly advise and produce an abortion, since this, in my humble opinion, offers the only hope of saving the patient's life. In view of the above findings I ask you how you can afford to practice your profession without making these urinalyses regularly?

While watching for the above mentioned danger signals I warn you against losing sight of the well-known clinical evidences, which are high arterial tension, headache, dizziness, gastric disturbances, mental and physical torpor, intestinal toxemia, jaundice and pruritus. Upon the

arrival of any of these symptoms we look at once to the urine for the ammonia coefficient as well as for the presence of albumin and sugar. Furthermore it has recently been shown that a low output of urea is an unreliable index of the autotoxic state.

It is evident with the extreme gravity of this dreaded condition staring us in the face, that our responsibility is great. From the above it is very evident that the urinalysis ordinarily made in the doctor's office is wholly inadequate for all cases; hence, nothing short of a thoroughly conducted laboratory analysis will suffice to determine the products of a disturbed nitrogenous metabolism.

Dr. I. L. Van Zandt, of Fort Worth, Tex., advances and promotes the idea that indicanuria is a cause of toxemia of pregnancy; or rather he claims that it is present in practically all such cases, and upon proper treatment the condition will clear up. This has not been proved to be a fact, hence I leave it with you for your consideration.

This urinary subject is one of the greatest moment, and I believe that there is a higher mortality and morbidity in both mother and child from inadequate urinalysis and improper treatment than from any other one thing in the whole subject of obstetrics. And I verily believe that no man should be allowed to practice obstetrics unless he is willing to conscientiously keep a close watch on the urinary secretions as well as the other avenues of elimination.

The value of taking the blood pressure has only recently been recognized, strange as it may seem, yet it is one of the best criteria of the condition of the woman and her avenues of elimination. And the obstetrician who omits it in his obstetrical work is falling far short of his opportunity and duty to his patient, and there is absolutely no excuse in the present day and time, with our modern blood pressure apparatus, for any man to omit it. A blood pressure of over 140 mm. in a pregnant case should put us on our guard to look out for the beginning of a serious toxemia; hence the value of taking the blood pressure at short intervals of time.

I would also like to emphasize the importance of seeing your patients often, noting the pressure or absence of edema as well as their general condition, and of not being satisfied with an occasional bottle of urine.

Having carried our patients successfully through the perils of nine months we come to the delivery itself. What precautions are you taking against that great nightmare of every woman, namely, puerperal infection? Do you provide yourself with a sterile gown and gloves? The time has passed when it is safe for any man to do obstetrical work without using all the precautionary measures which the laity recognizes

as important towards safeguarding a woman from infection. And the laity are by no means ignorant any more. If a physician does not use these precautionary measures and happens to have an infection his lot is not a happy one, to say the least; as he has neither the support of the laity nor the profession.

On the other hand one may use every precaution known to science and then have an infection; but the difference in the two conditions is that in the latter you have the support of the profession, and last, but by no means least, a clear conscience, which is the greatest asset one can have.

Let us be conservative in our work. By conservatism I do not mean opposition to progress, but rather I favor progress which is not too radical, and which conserves the wellbeing of both mother and child. Let us ask ourselves the question, "Am I doing my obstetrical work in such a way as to best conserve the life and happiness of my two patients, mother and child? Am I giving each case proper study and care? Am I diagnosing the presentation before the woman is in the throes of labor? In other words, am I doing my whole duty by my patient?"

I have recently run across several cases of premature expulsive pains, viz., I have entered the room, found the woman bearing down with all the strength that she has. I washed my hands hurriedly, expecting the arrival of a visitor before I could get ready. Upon examination I found the head pressing on the perineum with the os only partially dilated; so instead of the delivery being accomplished in a few minutes it was several hours. The external os, instead of being dilated, was found to be thick and hard with a dilatation only the size of a silver dollar. It is obvious that the child cannot be born until the os is dilated. Now what was the cause of this condition and what was the proper treatment? The head had descended into the bony parts carrying the lower segments of the uterus with it. The pressure from the child's head within and the pressure from the bony parts from without had cut off the circulation in the lower segments, hence it had become thickened by the congestion and edema. This congestion in turn prevented the contractile force of the body fibres from being extended through this lower segment to the os.

I believe that this condition has been the cause of many ruptured uteri. Let's study the condition for just a moment. Normally we have the body fibers pulling upwards with only the circular fibers of the cervix to arrest the progress, which yield under normal conditions with each pain until dilatation is complete. But in this condition the whole force of the uterine contraction is spent on a mere ring of the uterus

held firmly between the head of the fetus within and the bony parts without, with this ring being weakened by every pain. Can you imagine a condition more ideal with which to produce a transverse tear? What are you going to do? Have the woman turn on her side with the hips slightly elevated, at the same time apply a little pressure on the head of the child as she turns. Often this causes immediate relief. If this fails, get your patient in a knee-chest position, also making pressure on the child's head with your fingers, and you will almost invariably get relief. Keep the patient on her side until dilatation is complete, and I believe that you will have few ruptured uteri. I call attention to this condition because I have met with it several times in my practice, and I believe it to be a most serious condition if not properly treated.

Thus far we have paid our respects almost entirely to the mother, so let us turn our attention for a while to the baby. Are we watching the fetal heart sounds as labor progresses, especially in the long drawn-out cases? I know of nothing that should interest the obstetrician more from the standpoint of the child than the character and rapidity of the fetal heart.

To safeguard the lives of these little ones taxes our best knowledge and skill, and especially in the application of forceps is this true. The too early application before the cervix is sufficiently dilated and the too late application after the fetal head has rested so long on the pelvic floor as to cause cerebral injury on the one hand and loss of vitality of the mother's soft parts on the other are both harmful. The wise obstetrician will steer clear of these two conditions, and in order to do so a vaginal examination of the cervix and a careful and frequent listening to the fetal heart are necessary.

The difference of ease, length of time, and safety of both mother and child, of delivery of anterior and posterior occiput presentation demands an early diagnosis of the condition present.

It was my unhappy lot to be called to see a woman in labor of whom I was told over the 'phone that she had been in labor for two days and nights without having made any progress and that she was in a desperate condition. I hurried to the scene, and upon my arrival was met by the doctor in charge, who told me that the patient was unable to deliver herself and that he had made three fruitless efforts to apply forceps. We went in and found a pulseless woman. I made a hurried examination and found a badly mutilated vagina, the lacerations extending through the vaginal wall into the rectum, the fecal contents exuding through the vagina. All of this had been done by the doctor in an effort to apply forceps. I found an occiput posterior presentation with

the head wedged down within the brim of the pelvis with absolutely no chance of delivery except by a mutilating operation. Had this case been properly diagnosed and handled early enough both mother and child could have been saved. I plead for an early diagnosis of these cases, and to aid in these diagnoses would emphasize the following points: first, the absence of the broad, smooth fetal back from the front of the mother's abdomen; second, the location of the greatest intensity of the fetal heart-sounds just outside the line joining the umbilicus and either anterior superior iliac spine; third, the character of the labor pains—the uterine contractions are always feeble, far apart and ineffective. With this picture before you, it demands a careful examination to either verify or exclude this condition.

There is another condition which I would like to mention. Namely, version in a tonic uterus. If you have tried a forceps delivery and have failed either on account of a disproportion between the passage and the passenger or upon an improper application of forceps or whatnot, the most natural thing to think of is version. Oftentimes this is good obstetrics; provided you do not have a tonic uterus. Version in a tonic uterus with the uterus contracted down firmly on the child and with the lower segments thinned out means rupture of the uterus and death of the mother in about 80 per cent of all cases.

With the present popularity and the low mortality attending the use of Caesarean section, I think it is plainly indicated in these as well as all other cases where delivery of a living child through the natural channel is shown to be impossible.

In conclusion the writer would like to sound a note of warning against the use of Caesarean section in conditions other than dystocia from pelvic contractions or tumors, namely placenta previa, eclampsia, accidental hemorrhage, etc. In the writer's opinion these conditions furnish an indication for a section only in the most rare exceptions. I believe that you may best serve both mother and child by delivering in some other way.

One thing must always be borne in mind that, no matter how carefully the uterine incision may be sutured, we can never be sure that the cicatrized uterine wall will stand a subsequent pregnancy and labor without a rupture. Hence, I believe that the use of this operation for conditions other than dystocia from contracted pelvis, tumors or tonic uterus should be few and far between.

TRANSFUSION IN OBSTETRICS.

W. T. Parrott, M.D., Kinston, N. C.

Transfusion to be of value, includes a previous knowledge of the patient and her needs. Furthermore, if one waits to prepare after the hemorrhage has occurred, he has already met defeat. Transfusion is so valuable, in fact, so indispensable, that I cannot think a man has done his full duty to a certain well-defined group of plethoric patients if he has not prepared for this contingency. The operator's technique must be perfect, and, if possible to anticipate, the hemolytic blood reaction of the proposed donor and recipient must be done. While I would not hesitate to do a transfusion in any case of real emergency, taking chances with hemolysis in case I could procure a brother, father, sister or near relative of the patient if the operation was strictly a dernier resort, still it is certainly the part of wisdom to make the blood test before labor has begun. Then, if the transfusion becomes necessary, one is sure of his footing. If his patient does not require it, he has the knowledge that he has done his duty. Transfusion is very valuable in severe hemorrhage, and severe hemorrhage is not to be unexpected in any case of obstetrics. The fact is, no man who does much obstetrical work should fail to be prepared to do transfusion; indeed, I am sure that a reliable transfusion set is as necessary a part of the obstetrician's armamentarium as his forceps. Of this I am sure, the average man uses forceps too much; his transfusion set not enough. Now, I do not wish to imply that one should do transfusion indiscriminately.

Transfusion, to repeat, should never be employed except as a last resort and, except in emergency, not until the danger of hemolysis has been determined.

I formerly used the old method, which was so tedious and long drawn-out as to make it impractical in many cases, but since the method of Rous and Turner as published in the *Journal of the A. M. A.*, for June, 1915, is so quick and satisfactory, this part of the technique has been reduced to a trifle.

For a long time infusion was thought to be of equal value to transfusion and combined with the fact that hypodermoclysis and proctoclysis were both simple, the normal salt solution was preferred to transfusion. In severe hemorrhage, however, this is not true. Given a patient almost exsanguinated, I am enthusiastic over the results of a trans-

fusion, and I find it is possessing many advantages over any artificial media. First, new blood is furnished, and while the salt solution is capable of increasing the blood pressure, still its effect is more transient and not so lasting as in transfusion.

Now, while it may appear that it is not desirable to increase blood pressure in severe hemorrhage, this has not been my experience. Furthermore I have tested many methods and my experience has been uniform in that the salt solution rarely raises the blood pressure in its first effect as high as in transfusion. This fact I am prepared to prove in the dog. Then again, the quick stimulating and nourishing effect of the new blood is decidedly more marked and lasting.

For the last five years I have experimented considerably with many methods, and while most of the experiments have been conducted on the dog, still I think the conclusions are sufficiently accurate to apply them in practice.

The Crile method—my objections to this are as follows: I am hardly ever able to complete the technique with sufficient alacrity to make it desirable in emergency work. Secondly, the direct end-to-end anastomosis of the artery of the donor with the vein of the recipient is not without danger of increased infection.

For this reason, and because of the fact that a definite quantity of blood given cannot be determined, I prefer one of the indirect methods. There are many of them, and it is sometimes a problem as to which one is preferable. In a general way all possess some merit. First, a definite quantity of blood must be given; secondly, the danger of infection is only one way, but if you can exclude any specific disease in your donor by a careful history and examination, you are practically eliminating the danger of an infection this way. With the end-to-end anastomosis of the blood vessel, of course either one may infect the other. This would be a 100 per cent chance of infection. In an indirect method, only the receiver could be infected, provided, of course, your technique was perfect.

The Percy (indirect method) is less objectionable in these particulars, although the coating of so large a tube with paraffin is difficult and the formation of thrombi on any portion of the uncoated tube is probable. The modified method of Fauntleroy seems to approach more closely the coveted conditions. It is simple, inexpensive and can be prepared by any one other than a glass blower.

Any method selected should be thoroughly and carefully tried out on the dog before being used on the patient. I believe with Mayo that if more dog work were done, conditions would be better for the dog.

Surely an undesirable element of the canine population would be eliminated by one's first few transfusions. (I mean to imply that one must expect to kill his first dog. I am not sure that this would not happen to his first patient.)

In the Fauntleroy method, instead of the curved glass tubes with flanged extremities, I prefer a straight tube tapered at the ends with a circular ring about one centimeter from the terminus. The tubes should at all times be ready if transfusion is to be of value. Keeping them immersed in alcohol appears to be all that is necessary although a sterile phial of paraffin must be kept ready with which to coat them. The use of a wide constrictor (the armlet of any blood pressure apparatus will answer) is necessary to insure a good flow from the donor. This wide armlet is important. My favorite vein is the median basilic, and this is exposed for one inch.

The Beth Vincent and the Brown-Kimpton apparatus both possess merit, but I prefer the former. The use of paraffin to coat the lumen of the tube used has greatly simplified transfusion, and I have found a 10 to 20 per cent ether dilution of the melted paraffin greatly facilitates the coating. The ether reduces materially the viscosity of the paraffin and permits of a more uniform and even spreading.

In regard to the use of sodium citrate, my experience is that it decreases the coagulability of the blood within the body of the donor as well as in the tube. I am fully aware that this observation is not in accord with the experiences of some others, but it has been my experience whenever sodium citrate is used, and I have employed it by hypodermoclysis orally and intravenously, always with the same results. An ordinary salvarsan tube may be used for this, and it requires very little more time for the operation. I do not consider hiridun or the proteoses so valuable as the citrate. The first is sometimes toxic and the latter is difficult of sterilization.

The following cases are given to show the value of sodium citrate as a preliminary measure in transfusion. I am so convinced of the value of sodium citrate given as a precautionary measure in transfusion that I always do it, provided I have sufficient time:

CASE I.

The Donor. The donor male, age 45; height 5 feet 6 inches; weight 165 pounds. Given two gms. citrate soda in 64 cc. sterile water through the needle at 10:45 a. m. The median basilic vein was opened and 16 cc. blood withdrawn just before the citrate was given. A beginning clot was observed in 30 seconds. Half hour after the citrate was given (through needle) another specimen of blood was taken (16 cc. under identical conditions) and no clot was observed to occur until two minutes and 45 seconds had elapsed. In the two specimens the clots were not of equal size or firmness until more than three hours.

CASE II.

THE DONOR. Donor given 32 gms. citrate solution by mouth two hours before transfusion begun. Previous to and following the citrate solution 16 cc. blood withdrawn and comparison made. In the first specimen (before soda given) a beginning coagulation was observed in 20 seconds. An hour after the second specimen (after the citrate given) showed no clot for five minutes. After an hour the second specimen showed a softer clot than the first one.

CASE III.

THE DONOR. In this transfusion, sodium citrate given four hours after the operation (as we anticipated) and by mouth. An apothecary ounce was administered. Before the citrate was taken 32 cc. blood was examined. It showed an almost immediate clot. After the operation the clot did not occur for several minutes, but we kept no accurate time on account of being too busy with the patient. I regret not being able to carry these observations further, but one has little time to spare in a blood transfusion.

Carter claims that sodium citrate is nontoxic when used in the proportions of 0.3 per cent for a transfusion of 1000 cc. of blood. I have never found it necessary to give this much and have felt perfectly safe with 500 cc. containing this amount. Lewisohn's experiments on the dog seem to show that this salt is toxic if injected in a vein too rapidly in a too concentrated solution. In obstetrical work I carry a two per cent solution sterilized and ready. This, of course, gives a 0.3 dilution when the blood in the tube is drawn up to a one-to-ten dilution. This percentage answers every requirement for an immediate transfusion and no toxic results can be reasonably expected.

ANATOMY

VARICOSE VEINS OF BROAD LIGAMENT

J. W. Tankersley, M.D., Wilmington, N. C.

In looking up the literature I find there is very little said of this very common condition, and I believe it is because so little importance has been attached to it. A few years ago my attention was attracted to the symptoms so common to multipara with uterine displacements in which I could not find sufficient displacement or pelvic trouble to account for the symptoms. In these cases I invariably found enlarged veins of the pampiniform plexus. Again, I have noticed in my cases, and others, where an operation for displacement, etc., was performed, some of the numerous methods of shortening the round ligaments, the patient was not always relieved of that pain in the lumbar region, feeling of weight when on their feet and profuse watery leucorrhoea. From my own experience I believe this condition is not uncommon, probably occurs very frequently, but not often reported as the symptoms do not appear to be distinctive.

Now, what are the symptoms? It is found most frequently in child-bearing women, though not limited to them, and is probably the result of local congestion and impairment of circulation due to pregnancy. Again, it is found in too rapid pregnancies and most always with severe displacements of the uterus. Any condition that will impair the pelvic circulation may be the cause. The symptom most commonly noted is a persistent dull pain in the iliac, or lumbar region, usually on the left side, which is most frequently affected. Pain may be felt in any region in the lower abdomen, aggravated when the patient stands and during the menstrual period, subsiding when the patient lies down or the menstrual flow has started. The menses are abundant and irregular as to duration and date of beginning. Another symptom often mentioned is the watery leucorrhoea, which is very difficult and tedious to treat, and greatly aggravated about the menstrual period. The physical examination is very often negative, but in favorable cases we can feel a hard lump or irregular mass situated below the ovary, and a swollen, plastic condition at the bottom of Douglas' pouch. When standing, the palpation will be more positive, and when this condition is suspected we must have recourse to examination in this position.

The treatment. As we cannot apply supporters as in the male, the only treatment is surgical, either to doubly ligate, excise, or simply divide. My plan has been to divide the peritoneal covering, strip it back far enough to remove a section of the plexus, bring the severed ends together and sew over the peritoneum with fine silk or linen. I wish here to call attention to the necessity of recognizing this condition when it occurs with a displacement and after correcting the displacement proceed with the operation on the varicose veins, if not very often you correct the mechanical defect; but do not eliminate the symptoms for which the patient has applied, namely, backache, abundant menses and profuse leucorrhoea.

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Dr. Henry Theodore Bahnson.

EARLY HISTORY OF THE NORTH CAROLINA MEDICAL SOCIETY

(ILLUSTRATED)

JOHN WESLEY LONG, M.D., GREENSBORO, N. C.

Mr. President, Ladies and Gentlemen:

If you will indulge me in a word of explanation I will take you into my confidence. However, I shall endeavor not to impose personal matters upon you except in that they relate to the subject in hand.

I became interested in the history of the North Carolina Medical Society while writing the Presidential Address for the Southern Surgical Association, which address was largely historic in character.

The preparation of the present lecture has, much to my surprise, proved to be the biggest piece of literary work I have ever undertaken. I began the study two years ago and have devoted to it every moment since that time that I could spare from a rather busy professional life. The work has entailed an enormous correspondence necessitating the service of a special stenographer, besides the work my regular secretary has done.

The physicians of the State have been very responsive. While in a few instances I have had to write several times before getting a reply, and occasionally telegraph or use the long distance phone, most of them have responded promptly. Without their coöperation I could never have gathered so much valuable material in the way of historical data and illustrations. Especial thanks are due my lifelong friend, the lamented Dr. Henry T. Bahnson, whose recent death we all mourn. Dr. Bahnson was the oldest living President in point of service. Since the last shall be first, I ask the privilege to show his picture to begin with. Dr. Bahnson had one of the very few complete files (Bahnson's set lacks 1861) of the Transactions from which he magnanimously loaned me the earlier volumes, which are so scarce. Dr. Bahnson's picture should be placed in the Hall of Fame. Peace be to his ashes. After much labor and considerable expense I have accumulated almost a complete set of my own.

It was my purpose at first to embellish the lecture with a lantern slide of every man who had ever held office in the Society and many others. But remembering the old saying, which by the way is not true, that "there is no good Indian but a dead Indian," I decided to eliminate

the living; not because of their Indian blood, but largely because of the innate modesty of the typical North Carolina medical office holder.

As the work progressed such a large amount of material accumulated that it became quite plain it could not all be judiciously handled in one lecture without overtaxing the patience of even the most patient audience. Therefore, we will study tonight only the

Early History of the North Carolina Medical Society.

For convenience we will divide the subject into two periods. The first embraces the years 1799-1804.

Perhaps few in this audience know that there was a North Carolina Medical Society antedating the present organization by fifty years. Indeed, Dr. Thomas F. Wood says there is a rare book in the library of the late Governor Clark, by Joseph Pignatius, which contains a reference to a still earlier Society.

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NORTH CAROLINA MEDICAL SOCIETY ORGANIZED.

The following are quotations from the *Raleigh Register*:

November 12, 1799:

It is contemplated by several Gentlemen of the Faculty, in the State, to form themselves into a Medical Society, and that they intend to convene for that purpose in this city some time in the month of December.

December 10, 1799:

Dr. Calvin Jones, "Secretary of Correspondence," published a notice that the Medical Society would hold its meeting in Raleigh December 16, 1799.

December 17, 1799:

The Medical Society met this day when Dr. (Jason) Hand was appointed to the Chair, and the Society proceeded to business.

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AN ACT TO INCORPORATE THE NORTH CAROLINA MEDICAL SOCIETY.

Laws of North Carolina, 1799. Chapter XXXVIII.

1. Be it enacted by the General Assembly of the State of North Carolina, and it is hereby enacted by the authority of the same: That the physicians who have associated themselves together, forming a medical society, be incorporated by the name and title of the North Carolina Medical Society; by which name the society shall have perpetual succession and a common seal and be entitled to sue and be sued, and possess all the other rights and privileges usually vested in corporated bodies, and have a right to hold and possess in their own right, any estate, real or personal, the said society may acquire.

II. And be it further enacted: That the said society shall have it in their power to enact by-laws for their own regulation and government which laws

Dr. Richard Fenner's Grave.

shall be binding on all its present members, and any member or members who shall be hereafter admitted.

This charter was granted by the Legislature of North Carolina on December 23, 1799.

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On Monday, the 16th of April, 1800, a convention of the faculty was held in the city of Raleigh, affociated under a conftitution and form of government by the name of the "North-Carolina Medical Society"; and the following gentlemen were elected officers for the enfuing year:

Richard Fenner, Prefident.
Nathaniel Loomis, John Claiborne, Vice-Prefidents.
Sterling Wheaton, James Webb, James John Pafteur, Jafon Hand, Censors.
Calvin Jones, Corresponding Secretary.
William B. Hill, Recording Secretary.
Cargill Maffenburg, Treafurer.
The following gentlemen were appointed to deliver differtations on fome medical fubject at the next meeting of the Society, viz. J. J. Pafteur, J. Webb, S. Wheaton and N. Loomis.

This slide and the next one were taken verbatim et literatim from the *Medical Repository* and *Review of American Publications on Medicine, Surgery and the Auxiliary Branches of Philosophy,* by Samuel L. Mitchell, M. D., F. R. S. E., and Edward Miller, M. D., Vol. IV., New York, 1801, page 202.

Note that the *Repository* gives the date of this meeting as April 16, 1800, while the *Raleigh Register* published a list of the same officers on December 24, 1799, and states further that the Society adjourned with a resolution to hold its next annual meeting in Raleigh, December 1, 1800. I leave the settlement of this question to wiser historians than I.

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An effay on the Symptoms, Nature and Cure of the Dyfentery, was made a prize fubject for any medical gentlemen practifing in this State, at the next annual meeting, which will be held on the firft day of December next. The prize differtation muft have annexed to it fome cypher or emblem to identify the author, enclofed and fealed, which will be burnt if it fhould not be accounted worthy of the prize. The fealed enclofure to be broken open in the prefence of the Society.

From the early patronage of the Legiflature towards this firft fcientific Society of the State (having, at their prefent feffion paffed an act for incorporating it), and from the zeal and enterprife of the gentlemen who compofe it, we truft it will prove a Society of the firft refpectability and ufefulneff.—Medical Repository, Vol. IV, New York, 1801, page 202.

Notice the use of the old English "s" which is really an "f."

It is gratifying to learn that the gentlemen who composed the Society desired to be "of the first respectability and usefulness."

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NORTH CAROLINA MEDICAL SOCIETY.

Second Annual Meeting, Raleigh, *December 1, 1800.*
Dr. Richard Fenner, President; Dr. Sterling Wheaton, Secretary.
Charles Smith passed a successful *examination* before the *Board of Censors.*
The Society divided the State into *Medical Districts.*
It urged that frequent *periodical District Meetings* be held.

I show this picture on the screen for two reasons:

First, that we may see where our Board of Medical Examiners originated, not only our Board of Examiners but that of all the other States. You are aware of the fact that North Carolina inaugurated the present Board of Medical Examiners in 1859, and that she was the first State in the Union to establish such a Board. The original North Carolina State Medical Society elected a Board of Censors at its first meeting in 1799. At its second meeting in 1800 Charles Smith passed a successful examination before the Board. It was the function of that Board of Censors, as it is now the function of the Board of Medical Examiners, to determine who are fitted to practice medicine.

Charles Smith was the first physician on record who was subjected to the ordeal of an examination before the Board. I saw a tablet in Westminster Abbey which was placed there to the honor of the first man who carried an umbrella. Charles Smith should have a monument.

The second reason for showing this slide is that when in 1902 the American Medical Association adopted and urged upon the State Medical Societies the plan of dividing the States into medical districts, every one applauded the wisdom of the American Medical Association.

This picture reveals the fact that our own professional forefathers had more than a century before inaugurated the same system.

The first President of the North Carolina Medical Society (1799-1800) was Dr. Richard Fenner. Fenner was the son of Robert Fenner and Lady Ann Codington of Ireland. While Richard was quite a child the family immigrated to New Bern, North Carolina. Richard espoused the cause of the Colonies and became a Lieutenant in the Second Regiment of North Carolina Continental Infantry. After the Revolution he graduated in medicine and located in Raleigh. In 1823 the family (Dr. Fenner had eleven children) moved to Madison County, Tennessee. This was the year the Monroe doctrine was promulgated.

After diligent search I have been unable to find a picture of Dr. Fenner, but through the courtesy of my friend, Dr. Jere Crook, of Jackson, Tennessee, I secured a photograph of his grave, which I thought would interest you because of its historic association.

Dr. James Webb.

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NORTH CAROLINA MEDICAL SOCIETY.

Second Annual Meeting, Raleigh, December 1, 1801.

Dr. John C. Osborne, President; Dr. Sterling Wheaton, Secretary.

Dr. Thomas Mitchell and Dr. Richard Fenner, Vice-Presidents.

Dr. James Webb and Dr. John Sibley, Censors.

Dr. Calvin Jones, Corresponding Secretary.

Dr. Cargill Massenburg, Treasurer.

The Society held a three-day session.

The *Raleigh Register* says that "A considerable number of respectable Physicians from various parts of the State were present."

Presidential address: "A cursory narrative of the progress of the science of Medicine, from the earliest ages."

Dr. Wheaton's address: "An ingenious practical treatise on General Dropsy."

Committee appointed to found a botanical garden and a medical library.

NOTE.—A meeting was held in 1802 according to the memory of Dr. James Webb. However, his memory was evidently uncertain, he being almost an octogenarian. Dr. Webb says the meeting was organized in 1802, when it is clear that he was a charter member in 1799.

Osborne, who lived in New Bern, was elected President at the 1800 meeting and presided at the 1801 meeting. He must have been very zealous in the cause or a good politician, probably both, since he succeeded himself in office each year as long as the Society existed.

Dr. James Webb, of Hillsboro, was born in 1774 and died in 1855. He was one of the earliest students at Chapel Hill and graduated at the University of Pennsylvania. The Webb family has always been one of the most distinguished in the State. Two of my father's brothers, one a physician, married daughters of Dr. Webb. Dr. Webb was a charter member of the 1799 Society and a member of its Board of Censors during its existence. He was also a charter member of our present (1849) Society. He was the sole survivor from the earlier Society, the only connecting link between the two organizations. Being seventy-five years old in 1849, he was soon made an honorary member. He died in 1855 at the age of eighty-one, much beloved by both profession and laity.

I will not weary you with all the details of this most interesting medical history. Suffice it to say that a review of the proceedings of the Society shows that its Fellows were scientific, progressive and alert to every interest pertaining to the profession and the welfare of the sick.

Annual meetings were held in 1799, 1800, 1801, 1802, 1803 and 1804, all in Raleigh. At the 1804 meeting it was resolved to hold the next one in Chapel Hill, July 5, 1805. No record of this or any further meeting can be found.

They reviewed the history of medicine, offered prizes for essays, discussed prevailing diseases, established a botanical garden, library and museum, besides doing some important original work.

They subjected applicants for membership to the ordeal of an examination before the Board of Censors.

They divided the State into Medical Districts and urged that periodical district meetings be held.

Dr. Calvin Jones was "Secretary of Correspondence" of the Society from start to finish. About twenty years later he turned over to the University of North Carolina a "museum of artificial and natural curiosities," probably the residue from the Medical Society's collection.

There is much interesting history about the writings of Dr. Jones on vaccination in the *Raleigh Register,* 1800-1801. Jenner made his first announcement regarding vaccination only in 1798. In 1802 Dr. Samuel Vierling, of Salem, sent a special messenger and got some cowpox virus with instructions how to use it from "a certain Doctor in Raleigh."

Mr. Marshall Delancey Haywood has written entertainingly of the 1799-1804 Society in the *North Carolina Booklet* for January, 1917, from which I have drawn freely.

Going back to original sources for evidence concerning the history of the 1799-1804 North Carolina Medical Society, there are only three or four, namely:

1. The *Raleigh Register* for those years.
2. The Transactions of our present society, which contain only imperfect accounts of the early Society.
3. The *Medical Repository,* found in the Surgeon-General's Library.
4. Scattered references in the Medical Journals of that day.

However, the sum total of these references establishes beyond controversy not only the existence of the Society, but the high character of the men composing it and the progressive nature of the work they did.

Second Period.

Our present North Carolina Medical Society dates from 1849. On January 27, 1849, certain physicians who were members of the Legislature, together with several other physicians, met in the Clerk's Room of the Senate Chamber and, after conferring, issued a call for a State Medical Convention.

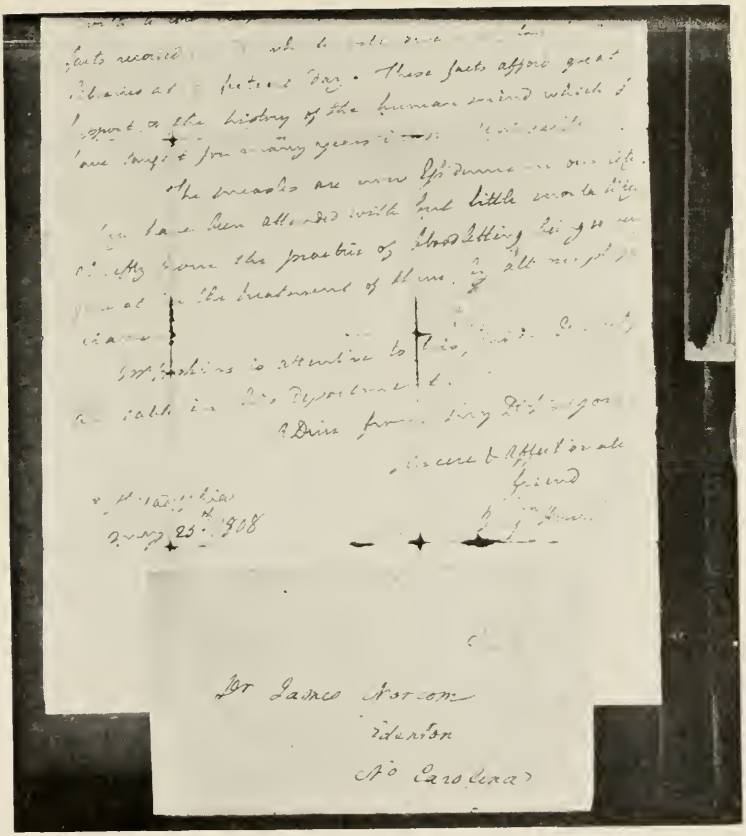
Dr. J. S. Erwin.

"OREON."

Dr. Hill's Grave.

Dr. Edmund Strudwick.

Dr. James Norcom.



Dr James Norcom
Edenton
N° Carolina

EXTRACT FROM LETTER, DR. RUSH TO DR. NORCOM.

Dr. James E. Williamson.

Dr. James H. Dickson.

Dr. Charles E. Johnson.

Dr. W. H. McKee.

Dr. A. J. DeRosset.

Dr. N. J. Pittman.

[Slide]

CALL FOR STATE MEDICAL CONVENTION.

Met in Clerk's Room Senate Chamber, January 27, 1849.
Dr. W. B. Lane, Chairman, Senator from Randolph County.
Dr. J. S. Erwin, Secretary, Member Legislature from McDowell.
Dr. W. M. Taylor, Member Legislature from Nash.
Dr. Jas. E. Williamson, Caswell County.
Dr. C. E. Johnson, Wake County.
Dr. W. H. McKee, Wake County.

The call was published in Raleigh papers February 7, 1849.

References: *Raleigh Register*, February 7, 1849. Trans. N. C. Med. Soc. 1849, p. 3; 1859, p. 20.

The men making the call for organizing our State Medical Society deserve to be gratefully remembered.

Dr. Lane represented Randolph County in the Legislature more or less continuously from 1835 to 1855. At the time the call was made for the State Convention he was Senator from Randolph and took an active part in the formation of the Society.

The last three gentlemen were not members of the Legislature and will be referred to later.

Dr. J. S. Erwin, whose picture we show, was a distinguished physician and member of the Legislature from McDowell County.

Among the many well-known kinsmen of Dr. Erwin is Mrs. Dr. R. L. Gibbon, who kindly loaned me his picture.

In looking up the *Raleigh Register* for February 7, 1849, I find that the call for the Medical Convention was made for April 3; but it appears that it met on April 16, 1849.

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STATE MEDICAL CONVENTION.

Held in Raleigh, April 16, 1849.
Dr. F. J. Hill, President; Dr. W. H. McKee, Secretary.
Physicians present, 25; Counties represented, 8.
Membership: Delegates—those appointed by Counties; Associate—members of County Societies.
Organized the *North Carolina State Medical Society.*
Adopted Constitution, by-laws and American Code of Ethics.
Appointed delegates to the National Medical Society.
Decided to *censor* Constitution of County Societies.
Debarred patentees and certifiers of secret remedies.
Exalted *Education*, *Experience* and *Character.*

Dr. Frederic J. Hill, of Brunswick County, was elected Chairman of the 1849 State Medical Convention. In nominating him Dr. Edmund Strudwick moved to make Dr. Hill President. The State Medical Convention passed a vote of thanks for the impartial and dignified manner in which Dr. Hill presided. He would probably have been elected to succeed himself, but he asked that he be not nominated since he had not been in active practice for many years because of ill health. He suggested Dr. Edmund Strudwick for the Presidency.

Dr. Hill was made the first Honorary member of the State Medical Society. He was largely responsible for a movement in 1825 which culminated in a law in 1839 providing for free schools in every county in the State. Hence, Dr. Hill was fittingly called the "Father of Public Schools."

Dr. Hill owned a plantation near Wilmington known as "Orton," which now belongs to James Sprunt. It was said to have been and is now one of the finest plantations in the South. Mr. Sprunt kindly sent me the picture from which the Orton slide is made.

After a most exhaustive search I have been unable to secure a picture of Dr. Hill, but in order that we might have something more by which to identify the man who bears such an historic relation to our Society I present a photograph of his last resting place. I was enabled to secure this picture only through the kindly offices of my friend, Dr. W. C. Galloway.

References: Dr. W. C. Galloway's letter, etc. Trans. N. C. Med. Soc. 1849, p. 8.

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NORTH CAROLINA MEDICAL SOCIETY.

First Annual Communication, Raleigh, April 3, 1850.

Dr. Edmund Strudwick, President; Dr. W. H. McKee, Secretary.

Added—Permanent Members and Honorary Members.

Only Permanent Members allowed to vote or hold office.

Memorialized the Legislature for law authorizing Registration of Marriages, Births and Deaths.

(Only *Registration* of *Marriages* passed Legislature.)

Ordered proceedings published in *Southern Medical Reports.*

Committee on propriety of establishing a *Medical College.*

Features:

1. Address, Dr. Thomas N. Cameron, of Cumberland County.
2. Report, Dr. N. J. Pittman from the American Medical Association.

Dr. Cameron, of Cumberland, was a charter member, Vice-President, and delegate to the American Medical Association, Member of the Committee on Medical Colleges.

Board of Examiners.

It was the custom for the delegates to the National Society to make a detailed report to the State Society. Their reports were absorbingly interesting and served to keep the profession of the State in touch with the work of the American Medical Association and incidentally demonstrated the acuteness of the reporter's observation. It might be well to return to this good old custom.

Dr. Edmund Strudwick, of Hillsboro, was President of the State Society during its first and second years. He was a pupil of Dr. James Webb. His unceasing devotion to his preceptor is one of the delightful memories of the quaint old town of Hillsboro. Strudwick shaved Dr. Webb each morning, never allowing personal inconvenience to interfere.

It would be easy to consume half the time allotted to this lecture eulogizing Dr. Strudwick. Dr. H. A. Royster has written a stirring biographical sketch of him. Among his chief characteristics were great courage and energy, morally, mentally and physically; also his unfailing charity as exemplified by his service to the indigent, as well as his skill and daring as a surgeon.

Dr. Strudwick met an old blind man in the road being led by a boy, "And when he saw him he had compassion on him" (Luke 10:35). Strudwick took the blind man to his own home, removed the cataracts and kept him until vision was restored in both eyes.

While riding one night with a doctor who was a dope fiend, Strudwick was thrown from the buggy, sustaining a fracture of the ankle. After lying on the ground in the darkness of the night for several hours he was taken to the house of the patient whom he was going to see and who had a strangulated hernia. Strudwick was placed on the patient's bed and operated on the hernia before allowing his own leg to be set.

In his Presidential Address Dr. Strudwick advocated *educating the public to the value of autopsies.* He died at the age of seventy-seven from taking an overdose of atropia by mistake.

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NORTH CAROLINA MEDICAL SOCIETY.

Second Annual Meeting, Raleigh, May 21, 1851.

Dr. Edmund Strudwick, President; Dr. W. H. McKee, Secretary.

The Society severely *condemned contract practice.*

Resolved that the Society should be *migratory.*

Dr. J. E. Williamson says: Old woman in 1816 whose family had typhoid, refused to let patients take medicine or be bled. She threw down *bushel of ice* and told the doctor to "cool their bowels." All the cases recovered.

Dr. C. E. Johnson opposes *miasmatic theory* of disease.

Blood-letting the chief therapeutic remedy of the day.

Memoir of Dr. James Norcom, of Edenton, by Dr. S. S. Satchwell.

At every meeting of the Society we see striking evidences of the sagacity of these pioneers. At the same time, it is refreshing to observe that the common sense of an ignorant old woman rebelled against the empiricism of our so-called learned profession, refusing both bleeding and medicine in typhoid fever and used ice instead. Her name should head the list of the hydro-therapeutists of later years.

According to Dr. Williamson, typhoid mortality was immense in Orange County. One entire family died; the neighbors burned the house. They surely believed in taking thorough sanitary precautions.

I will have something further to say about Johnson's address later on. In the present hour of the Nation's distress the importance of Medical Preparedness is strikingly set forth in a couplet which Johnson quotes from Homer as he sang about his beloved Troy and her fall a thousand years before the Christian era began:

> "A Physician skilled, our wounds to heal,
> Is more than armies to the public weal."

Apropos the subject of blood-letting is the memoir of James Norcom, by Satchwell.

Dr. James Norcom was born in 1778 and died in 1850. He graduated in medicine at the University of Pennsylvania in his twentieth year. He was learned in his profession. Was often sent for in consultation from a distance of more than one hundred miles. He possessed a *tactus eruditus* to a remarkable degree. He would not tolerate empiricism or quackery. He was kind and courteous to both patient and his professional brethren. He was a giant in the profession.

Dr. Norcom was a private pupil of Benjamin Rush who set the standard of medicine during his day. Hence, Norcom was a devotee of blood-letting. Rush taught to "bleed as long as you can get blood; if you can't get blood get water; if you can't get water get wind."

Rush bled George Washington to death when he had diphtheria. It seems the irony of fate that when his student, James Norcom, fell down the steps at the age of seventy-two his physicians should follow the same practice and bleed him to death. I quote from a recent letter written to me by Miss Penelope C. Norcom, a granddaughter of Dr. James Norcom: "While visiting a patient one night, he fell down a flight of stairs, striking his head on the post, rendering him unconscious. He was bled in both arms—copiously—he never recovered—bled him to death!"

Through the courtesy of Miss Norcom, I came in possession of a letter written in 1808 by Dr. Benjamin Rush to Dr. Norcom. The next slide shows a quotation from this highly prized "scrap of paper":

Dr. O. F. Manson.

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AN EXTRACT FROM DR. RUSH'S LETTER.

The measles are now epidemic in our city. They have been attended with but little mortality, chiefly from the practice of blood-letting being so very general in the treatment of them, by all our physicians.

Adieu! From, my dear Sir, your

Sincere and affectionate friend,

Philadelphia, May 25, 1808. BENJ. RUSH.

Note the date of the letter, May 25, 1808.

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NORTH CAROLINA MEDICAL SOCIETY.

Third Annual Meeting, Wilmington, May 11, 1852.
Dr. James E. Williamson, President; Dr. E. B. Haywood, Secretary.
Dr. J. H. Dickson's report from the American Medical Association.
Satchwell opposes Johnson's theory of the origin of disease.
Says *heat, moisture*, and *vegetable decomposition** cause disease.
He calls malaria "vigorous agent of death."
He refers to the existence of pellagra in Rome.
"Your Committee is forced to believe that a few good, well-endowed, well-supported Medical Colleges, independent of favor, will effect far more real and substantial good for the science of Medicine than an illimitable number of such as your Society have now the means of establishing."

The report of the Committee on Medical Colleges would do credit to Flexner.

Dr. James E. Williamson was born in Caswell County in 1799; died in 1867. Graduated University of Pennsylvania, 1825, practiced medicine and surgery 40 years. Made frequent post-graduate trips to Philadelphia. Was a colleague of Dr. Edmund Strudwick. He was called an "extremist" for cleanliness and fresh air. Celebrated preceptor—eminent surgeon. Charter member and president twice, 1852-1853. His picture indicates that he was a prince among men.

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NORTH CAROLINA MEDICAL SOCIETY.

Fourth Annual Meeting, Fayetteville, May 17, 1853.
Dr. James E. Williamson, President; Dr. W. W. Harris, Secretary.
Appointed Committees to report on the following:
Sections: Obstetrics, Surgery, Medicine and Epidemics.
Subscription for *stone in National Monument*, Washington.
Discussed malaria, dysentery, cholera infantum and typhoid.
L. L. Holmes' address, "Malaria the Cause of Dysentery."
He urged use of mercury, ipecac, opium and the *lancet*.
J. H. Dickson delivered classical address on *Respiration*.

*Lancisi theory.

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NORTH CAROLINA MEDICAL SOCIETY.

Fifth Annual Meeting, Raleigh, May 9, 1854.

Dr. J. H. Dickson, President; Dr. S. S. Satchwell, Secretary.

The Secretary read an extract from a periodical giving an imperfect account of the 1799 Society. Their knowledge of the early Society was less complete than ours.

Resolved that ministers dependent upon their salaries should receive professional services for themselves and families gratuitously.

Dr. J. B. Jones delivered a learned address contending that "nerve matter is the medium of relation to many morbid causes, and the seat of a corresponding number of maladies." He must have had tetanus in his mind. He was trying to controvert the humoralist.

Dr. C. E. Johnson delivered a thirty-page address on malaria. He says: "Endemic fevers are natural occurrences and are due to *atmospheric disturbances.*"

Dr. Dickson was President of the State Society twice, in 1854 and 1855; and was President of the first Board of Examiners, 1859-66.

He is said to have been the first to perform the operation for club-foot, the patient being his own brother.

He died of yellow fever in 1862.

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NORTH CAROLINA MEDICAL SOCIETY.

Sixth Annual Meeting, Salisbury, May 15, 1855.

Dr. J. H. Dickson, President; Dr. S. S. Satchwell, Secretary.

Dr. O. Hadley treats typhoid by *venesection* and *Potasium Iodid.*

Dr. W. H. McKee advised Tinc. Ferri for smallpox.

Also used *turpentine enemas* for *puerperal convulsions.*

Dr. N. J. Pittman reported *vesico-vaginal fistula operation.*

He prefers Jabert operation to that of Sims.

Also delivered address on *Auscultation and Percussion.*

Seventh Annual Meeting, Raleigh, May 13, 1856.

Charles E. Johnson, President; Dr. S. S. Satchwell, Secretary.

Appropriated $1,200 to establish a *State Medical Journal.*

Dr. Johnson was born in 1812 and died in 1876. He was born of affluence and high social position. He was gifted with rare mental endowments. Graduated from the University of Virginia and the University of Pennsylvania before he was twenty-one. Gained great reputation as a fever doctor. He was the first Chairman of the Board of Directors of the Insane Asylum. Had frequent offers to move to New York. Dr. Lewis Sayre sent his own son to Johnson to be treated.

Dr. Johnson was surgeon-general of the State in the Civil War. He established North Carolina Hospitals in Petersburg, Richmond, Weldon,

Dr. Christopher Happoldt.

Goldsboro and other places. He visited every battlefield in Virginia. He was President of the Society twice, 1856 and 1857.

Dr. Johnson was a voluminous writer. I hold in my hand a thirty-four page address written by him in 1851. Perhaps the greatest thing he ever did was to call in question the Lancisi theory of malaria. He and Satchwell fought like cats and dogs over this question. In 1852 he wrote another paper upon this subject which was quite as voluminous as the one written in 1851. While it is true that the hypothesis which he advocated, namely, that malaria is due to atmospheric changes, was as erroneous as the Lancisi theory that heat, moisture and decomposition cause malaria, yet we must take off our hat to the man who dares question any theory that has been accepted by the world for more than a hundred years.

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NORTH CAROLINA MEDICAL SOCIETY.

Eighth Annual Meeting, Edenton, May 15, 1857.
Dr. Chas. E. Johnson, President; Dr. W. G. Thomas, Secretary.
Pittman advocates *microscope in diagnosis of cancer.*
Edward Warren opposes Pittman in use of microscope.
Had heard Velpeau combat microscopists in diagnosing cancer.
Summerell reports fracture of skull; rock fell 300 feet.; raving delirium; lancet, calomel, 30 bushels ice; recovery.
Satchwell advocates *Board of Medical Examiners.*
Board of Medical Examiners unpopular with profession and laity.
Warren elected Editor of the *North Carolina Medical Journal.*

Dr. W. H. McKee was born in 1814 and died April 24, 1875. He was not only a charter member, but also signed the call for the 1849 Medical Convention and was one of the most active men in the Society. He graduated at the University of Pennsylvania and served as interne and later as resident physician in Blockley Hospital. He was a self-educated man and a frequent contributor to medical journals and societies. He was Grand Master of the Odd Fellows.

Dr. McKee was Secretary of the North Carolina Society during its first three years and was its President in 1858 and 1859. At his death he was a member of the Board of Censors. A lustrous feature of his character was the high personal and professional status in which he was held by his medical brethren. His funeral was one of the most largely attended and saddest that ever occurred in Raleigh. He was noted for his punctilious regard for the Code and for the courtesies and esprit de corps of the profession.

Reference: Transactions N. C. M. S., 1875, p. 20.

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NORTH CAROLINA MEDICAL SOCIETY.

Tenth Annual Meeting, Statesville, May 10, 1859.
Dr. W. H. McKee, President; Dr. W. G. Thomas, Secretary.
Censored Dr. Warburton Hill for advertising.
Elected the *first Board of Medical Examiners.*
Memoir of Dr. Armand J. DeRosset of Wilmington.

Eleventh Annual meeting, Washington, April, 1860.
Dr. N. J. Pittman, President; Dr. W. G. Thomas, Secretary.
Address by Dr. W. T. Howard, Warrenton, N. C.—"True Utility and Dignity of the Profession."
Edward Warren resigns as Editor *N. C. Medical Journal.*
C. E. Johnson and S. S. Satchwell elected Editors.

Notes on 1859 Meeting.

Three events worthy of note occurred at the 1859 meeting.

The first shows the exalted stand taken by the Society; namely, the censoring of one of its members for advertising. The next year the erring brother apologized and was reinstated. Wouldn't the Fathers have a job on their hands were they living in this good day?

The event of the 1859 meeting was the election of the first Board of Medical Examiners. The enactment of the law providing for the Board of Examiners was the greatest triumph this Society has ever scored. North Carolina was the first State in the Union to secure such a law. Please remember what was said about this matter in connection with the 1799 Society.

I was not present at the 1859 meeting, but something happened that year in Randolph County (where I was born) which makes it easy for me to remember the year.

The third item of interest occurring at the 1859 meeting was the memoir of Dr. Armand J. DeRosset. The first Dr. A. J. DeRosset was of noble blood. He fled from France to America because of religious persecution and settled in New London, now Wilmington. He was later offered his confiscated estates if he would recant, which he refused to do.

Our Dr. A. J. DeRosset (second) was born in Wilmington. He was educated at Hillsboro, Princeton, and University of Pennsylvania. He was a pupil of Rush and a friend of Benjamin Franklin. He was made an Honorary Fellow of the North Carolina State Medical Society at its first annual meeting. He practiced medicine 69 years, dying in his 92d year. For 162 years a Dr. DeRosset practiced in Wilmington, and for 186 years there was an unbroken succession of physicians in the family. A review of the lives of the DeRossets reads like an historical novel.

Dr. J. G. Tull.

Dr. N. J. Pittman's grandfather fled before Cromwell. Pittman was born in Halifax County August 9, 1818, and died in 1893. He was thoroughly educated and graduated at the University of Pennsylvania in 1839. He studied in Paris, Berlin, and London for three years. One of the most active Charter Members of the Society. Was President in 1860 and President of the Board of Examiners in 1866-1872. He was also Vice-President of the American Medical Association and delegate to the International Medical Congress in London and also delegate to the British Medical Congress. He also did numerous successful lithotomies. He, with Summerell, E. B. Haywood, W. G. Thomas and a number of other professional giants, were all called to their reward in the year 1893.

At this point we will consider briefly the personnel of the first Board of Medical Examiners. As you know the Board consisted of:

Dr. J. H. Dickson, President.
Dr. C. E. Johnson.
Dr. W. H. McKee.
Dr. O. F. Manson.
Dr. Christopher Happoldt.
Dr. J. Graham Tull.
Dr. Caleb Winslow.

I have already shown you the pictures of the first three.

Dr. O. F. Manson, who was a member of the first Board of Medical Examiners, was a very superior man intellectually and professionally, and lived at Townesville, N. C. He was of Scotch descent.

Dr. Manson graduated at the Medical College of Virginia at the age of 18 years. Eighteen years later he was elected Professor of Pathology and Physiology in his Alma Mater. He resided in Richmond from this time to his death in 1888.

Dr. Manson was a surgeon in the Confederate Army. Governor Vance appointed him in charge of the Moore Hospital for North Carolina soldiers in Richmond. Governor Vance said of him: "I regard Dr. Manson a very superior man intellectually and professionally; as a high-toned gentleman, and a man of profound learning, and great kindness." Dr. Thomas F. Wood, biographer, classes him with "S. H. Dickinson, George B. Wood, and David Drake." He was a voluminous writer, and had a large library of literature from both hemispheres.

References: Transactions N. C. M. S., 1891, p. 233. Physicians and Surgeons of the United States, p. 344.

Dr. Christopher Happoldt, of Morganton, N. C., was also a member of the first Board of Medical Examiners. I had more trouble getting a photograph of Dr. Happoldt than of any one else. I chased his picture

all the way from Charleston to Chicago. After many failures Dr. Gaston B. Justice, of Marion, secured one for me. Dr. Happoldt was a native of South Carolina. He studied medicine in Charleston, France, and Germany. He was editor of the *Charleston Medical Journal* in 1852. Dr. Happoldt lost his life in 1878 during the yellow fever epidemic at Vicksburg, a martyr to science and humanity.

Dr. J. Graham Tull, a member of the first Board of Medical Examiners, was a graduate of the State University and the University of Pennsylvania and did post-graduate work in Paris. He practiced in Kinston for a short while, moving from there to New Bern, where he practiced for twenty-five years. Dr. Tull was a scholarly man and was much beloved.

A biographical sketch in the *North Carolina Medical Journal* for August, 1892, says that Dr. Caleb Winslow was at that time the sole surviving member of the original Board of Medical Examiners. He was a graduate of Haverford College, Pennsylvania. Later he broke his clavicle, which directed his attention to the study of medicine. He graduated at the University of Pennsylvania and practiced medicine in Hertford, Perquimans County, N. C.

Dr. Winslow was widely known as a skillful surgeon. His record of 99 lithotomies with one death was for a long time the best in the world. Many years ago he trephined successfully for traumatic epilepsy, antedating the modern operation for that trouble. He was the father of Dr. Randolph Winslow of Baltimore, Md.

Dr. Samuel Tredwell Iredell was Secretary of the first Board of Medical Examiners, but he was not a member of the Board.

This slide shows a group picture of the first Board of Examiners, and it is the first time a group picture of the Board has ever been shown.

Dr. Edward Warren was one of the most remarkable characters that ever belonged to the North Carolina Medical Society. You will recall that the Society in 1856 appropriated $1,200 to establish a *Medical Journal*. I surmise that he induced the Society to give the $1,200. He was elected Editor of the *Journal* and, be it said to his credit, ran it very successfully for three years, when he resigned and moved to Baltimore.

In 1862 Warren was appointed Surgeon-General by Governor Vance to succeed Dr. C. E. Johnson. He did a great work. He wrote a book during the Civil War entitled "Surgery for Field and Hospital," which was adopted as the standard text-book.

Dr. Caleb Winslow.

While in Baltimore, he was called as a witness in the case of Mrs. Wharton, who was charged with giving General Ketchum a fatal dose of poison. The opposing lawyer, thinking to confuse Warren, asked him if doctors did not sometimes bury their mistakes under the ground. Warren replied, "Yes, and sometimes lawyers hang their mistakes above the ground." Mrs. Wharton was cleared.

Warren was a restless fellow, and from Baltimore he went to Egypt. While there he operated upon Kassam Pasha, the Minister of War under the Khedive, for strangulated hernia. He did this at great jeopardy to his own life, but the patient recovered and Warren was made Bey. From Egypt he went to Paris, where he became an eye specialist. He was made a member of the Legion of Honor of France. He wrote a book entitled, "A Doctor's Experience in Three Continents."

Reference: Transactions N. C. M. S., 1856, p. 16.

The 1861 Meeting.

We can imagine something of the feelings of those who met at Morganton, May 8, 1861, to discuss things medical and surgical. The country was full of war and rumors of wars; indeed, the shot that opened the bombardment of Fort Sumter and was heard around the world had already been fired, April 12, 1861. Governor Ellis had authorized the raising of ten regiments. Despite all this the only reference in the Transactions to the war was the report of the Committee on Nominations, which declined to nominate delegates to the American Medical Association. Their feelings must have been somewhat similar to ours today. The difference in the situation then and now is that their war was a family quarrel; ours is a world-wide struggle of democracy against autocracy.

Notwithstanding a small attendance and the absence of the President, Secretary, and Treasurer, the Society proceeded to business as usual and must have had a profitable and enjoyable meeting. The reports dwelt largely upon the diseases prevailing in the respective counties of the essayists. Forty-one members from as many counties were appointed to make reports the following year.

Dr. J. J. Summerell was elected President and the Society adjourned to meet in Wilmington in May, 1862. Instead it met in Raleigh, 1866, but that's another story, since the Morganton meeting closed the Second Period of the North Carolina Medical Society.

In reviewing the work and men of the early periods of our medical history there are many things worthy of our consideration.

In the first place it is to be noticed that the vision of those early fathers was quite as clear and far-sighted as our own. If we have gone

further in scientific development it is simply because we have stood upon the shoulders of the dead past and profited by the wisdom and experience of our progenitors. Practically everything that we stand for today was inaugurated and practiced by them.

Among these items are: the value of prolonged pre-collegiate study under a preceptor, which is comparable to our first and second years in the colleges of today; the restriction of medical schools to those thoroughly equipped; the supreme test of fitness to practice medicine and surgery by examination before a duly authorized Board, as shown by the Board of Censors in 1799 and Board of Examiners in 1859; the importance of interneship and post-graduate study in our own country and abroad; the wisdom of doing autopsies, establishing laboratories and museums; the encouragement of original investigations; the tremendous gain to be derived from organized medicine as shown by their societies, periodical meetings and division of the State into medical districts; and the spread of medical knowledge through legitimate publications.

They not only stood for all that was good, but they set their faces like a stone wall against all that was evil; against quacks and empiricisms; against secret remedies and the giving of certificates; against patentees; against advertising and against contract practice.

To say of these pioneers that many of their theories and practices have been provên to be erroneous, is only to anticipate what posterity shall say of us. They lived up to the best lights, the most advanced science, of their day. If we are in any sense better than our fathers were it is only because "a live dog is better than a dead lion."

One final word which is not wholly personal. Of the thirty-four young medicos who joined the Society with me in 1884 nine are still members. There are others present whose fellowship has continued longer than thirty-three years.

Looking backward, the class of 1884, together with those who joined just prior to and shortly following that date, cherish the distinction of having known personally a number of the Founders of the Society. They were our friends, our inspiration and our guide.

Looking forward, we may confidently expect that some of those who join the Society this year will continue their fellowship as long as we have. If it be so, and God grant that it may, I doubt not that the future historian of the Society sits with us tonight.

Therefore, it is an interesting thought that of our own knowledge we knew the men who founded the North Carolina Medical Society in 1849, and are tonight looking into the faces of those who will celebrate its centennial in 1949. Let us make history of which they need not be ashamed!

Dr. Edward Warren.

DISCUSSION OF CERTAIN BORDERLINE PROBLEMS

A. Cholecystectomy versus Cholecystostomy (with notes on Technique and Complications).
B. Treatment of Gastric and Duodenal Ulcer.
C. Relationship of the Thyroid to Graves's Disease.

George W. Crile, M. D., F. A. C. S., Cleveland, Ohio.

This paper is based upon critical studies of certain groups of operations performed by my associates, Dr. F. E. Bunts, and Dr. W. E. Lower; by my associates at Lakeside Hospital, and by myself. Included in these studies were the records of 1,161 operations on the gall-bladder and ducts; 497 operations on the stomach; and 2,030 operations for goiter, this number including 845 for exophthalmic goiter.

A. Cholecystectomy versus Cholecystostomy (with notes on technique and complications).

In our series we have seen cases in which a small stone has caused unbearable colic and others in which a massive stone has caused no pain; we have seen a massive stone erode its way into the small intestine, causing obstruction, or into the colon or stomach; we have seen the stone lying free in an abdominal abscess, or migrating into the liver, or into the swollen duct walls; we have seen stones in pockets, and the gall-bladder transformed into compartments; we have seen the common duct as large as the duodenum, or reduced to the diameter of a mere string of connected tissue; in some aged patients we have seen gall-bladders of vast size, while in others it has been but a small cicatricial mass; in a lank individual we have seen a Riedel's lobe project the gall-bladder into the pelvis; and in a broad-chested individual, have found it as high as the nipple; but it is not our purpose to discuss the exceptional cases, but rather those that are commonplace.

In our earlier experience we tried to save all gall-bladders, but we soon noted that after cholecystostomy it sometimes happens that after the patient has left the hospital with his wound healed, he suddenly experiences the familiar gall-bladder pain, accompanied sometimes by a chill and a sharp rise in the temperature, the pain in some instances being so intense as to demand a hypodermic injection of morphine. At the site of the old gall-bladder drainage scar there is first tenderness, then puffing followed by redness and in a few days there appears

a free discharge of mucus, pus and debris, later followed by bile. After this the symptoms promptly disappear and the wound heals speedily. Later on, this cycle may be exactly repeated. We soon found that this sequence occurred in those cases in which the infection had caused either thickening of the gall-bladder wall, or scar tissue and intermittent occlusion of the cystic duct; in cases in which the infection had extended into the crypts of the gall-bladder; and in cases in which stricture of the cystic duct had resulted from a decubitus caused by an imbedded stone; and in which the gall-bladders were large, white, thick-walled, and filled with thick mucus, brown debris and sterile pus—a condition which usually appears in aged subjects. In safe risks, we, therefore, excised the gall-bladder in these types of cases.

On the other hand, in cases of simple gall-stone colic, in which the gall-bladder and ducts are normal and no infection is present, we drain only. In addition, we employ only drainage, not excision, in grave hazards, such as cases of acute infections that do not clear up; or of gangrenous gall-bladders which are not easily removed; in extremely obese patients; in advanced age; or in the presence of hazardous chronic disease, where cholecystectomy is contraindicated. In many of these cases, however, the cholecystostomy is later followed by cholecystectomy, after the acute storm has passed or after the margin of safety has been increased. In other words, in some cases the gall-bladder is saved because it is too good; in others, because the condition of the patient is too bad; that is, we do not kill the patient to relieve him of his damaged gall-bladder. Experience teaches us that after excision, however carefully planned, and after drainage, occasionally the symptoms will recur and in some cases a secondary operation may be required.

There is no majestic finality of judgment in cases of biliary stone or infection any more than in cases of stone or infection of the kidney or ureters.

In the technique of cholecystectomy, the risk of injury to the common duct under certain conditions cannot be ignored. When expedient, the cystic duct is plainly isolated by dissection, tied and divided; the vessels being then separated and divided. In fat, obscure fields, the simple expedient of splitting the gall-bladder down to its lowest point is a splendid guide. If even a small amount of gall-bladder is left next to the cystic duct, a diminutive gall-bladder not only may form, but, moreover, may assume the prerogative of the normal adult gall-bladder, viz., become infected and develop a stone. I have seen instances of both these events. In one case of common duct-stone with a shrunken infected useless gall-bladder, in which I had excised the gall-bladder and from a position close to the common duct had extracted a tight-

fitting stone which had caused decubitus and infection, several months later a complete stricture of the common duct appeared. In this case, I mobilized the duodenum, opened it, excised the strictured common duct and brought the hepatic duct into the duodenum. For six years the patient has remained well.

In cholecystostomy, the drainage question is quite settled; not so in cholecystectomy, however, for in the latter, when anterior drainage is used, occasionally fluid will accumulate in the right kidney pouch or between the diaphragm and liver. This condition is betrayed by interrupted convalescence; a little fever, some pain, and slight tenderness. This problem has been met by adopting unreservedly Rutherford Morison's method of drainage, which consists in a lateral opening at the bottom of Morison's pouch, and a double drain, one connecting with the sub-phrenic space above the liver, the other lying below the liver, the abdominal incision being completely closed.

The immediate operative result is controlled by means of an ample exposure through a vertical incision, this being further amplified by a transverse incision, if required; by gentle handling; by knife dissection; by nitrous oxide anesthesia with a minimum amount of ether when required; by avoiding tight stitches; by encouraging moving about in bed; by the pre-operative and post-operative use of an abundance of water; by the administration of glucose and sodium bicarbonate solution administered by the Murphy drip, and by the infusion of normal saline solution. Finally, be it remembered, that cholecystectomy following cholecystostomy is one of the safest of all operations; first, because the patient may be operated upon at the optimum point as regards risk; second, because during the interval between the first and second operations, the immunizing forces are mobilized in the operative field.

In brief, my conclusion is that the indications for cholecystostomy and for cholecystectomy are similar to the indications for nephrectomy and for pyelotomy in cases of kidney stone. Whether or not we shall remove a kidney depends on the existing condition; on the same basis we decide whether or not to remove a gall-bladder. If any gall-bladder, which is normal excepting for the presence of a stone, is excised merely on the basis that some gall-bladders have later given trouble, then *all* gall-bladders and *all* kidneys would be excised. We believe that the ultimate decision must be made at the time of operation, this decision being based on the personal experience of the surgeon, the state of the gall-bladder and the condition of the patient. Both the gall-bladder and the patient should have a fair hearing and each is entitled to an unbiased judgment.

In our clinic, in consequence of our policy to individualize each case, cholecystectomies and cholecystostomies are now about equal in number.

B. TREATMENT OF GASTRIC AND DUODENAL ULCER.

The prime question in a consideration of the treatment of gastric and duodenal ulcers is this—shall they be treated by surgical methods alone, by medical measures alone, or by both combined? This question of medical treatment was not considered in our discussion of the treatment of infected gall-bladders, but it must be raised here. Ulcers of the stomach or of the duodenum are not so definitely cured by operation alone as are gall-stones. Therefore, we must modify our course of treatment accordingly. My own conclusion is that if a patient possesses the necessary spiritual and financial qualifications, then a fair trial of nonsurgical treatment with controlled alkalizing, frequent feeding, should be tried and tried faithfully. More and more am I prone to consider that the surgical results are due largely to the physiologic rest and the alkalization of the gastric contents. The end-results are in no small degree dependent upon the extent to which the physician gains control over the patient—the patient gets out of the treatment what the physician puts into it of time, intelligence and persuasion. It is interesting to note that after gastroenterostomy, most patients tolerate only small doses of alkalis. I attribute this to the fact that alkali enters the stomach via the new stoma as has been shown by Paterson.

If medical measures fail, then assuredly in view of the probability of cancer, of hemorrhage, of perforation, ulcers should be dealt with surgically. Even after surgical treatment, however, it is imperative that diet and medication be strictly controlled by the attending physician for a year at least. The ancient practice of employing an orator to enforce the following out of directions by eloquent persuasion may well be profitably renewed here.

The operation is now safe—for, including resections for cancer, the mortality rate is below three per cent; and for gastroenterostomy alone it is less than one per cent. The problems are purely technical—hemorrhage and leakage are absolutely controlled by the cobbler stitch; and the vicious circle may be eliminated in every case but the excessively fat mesocolon by mechanical adjustment, and in the excessively fat by a modified Roux operation. Bad risks are controlled by a two-stage operation; anemic cases by transfusion of blood; impending acidosis by water and alkalization; all cases are made more secure by light nitrous oxide anesthesia and by anociation; while pneumonia is prevented by free moving about and sitting up in bed, by anointing the chest, and by the use of a warm water mattress on the operating table.

In seriously starved cases of gastric ulcer, Professor von Eiselsberg's method is excellent. A jejunostomy is first performed under local anesthesia, the final operation being delayed until a safe margin of vitality has been established by feeding. Incidentally, the prolonged gastric rest usually cures the ulcer. Gastroenterostomy alone gives a rather light morbidity and mortality as compared with gastrectomy, as in the former the wound is not as extensive as in the latter operation, and the physiologic and anatomic adjustment is more readily made. This readjustment being accomplished, the gastric resection is performed with a wider margin of safety. Thus, by dividing the trauma and relieving the patient from the simultaneous burdens of extensive wound recovery and physiologic adjustment, the risk is decidedly less than when one massive chance is taken.

Rather by accident I have obtained a remarkable proof of the process of repair which follows gastroenterostomy, and also, as I am bound to infer, occurs in cases in which medical treatment has proved effective. In four instances in which in greatly emaciated patients the diagnosis of cancer has been made, it was deemed prudent to perform the operation in two stages, the first a gastroenterostomy, the second to have been resection. In each of these cases, upon opening the wound for the second operation from six to seventeen days after the primary operation, no trace could be found of the large obstructing mass. In one case, the site was removed and examined microscopically and it was found that only a slight excess of fibrous tissue remained as witness of the ulcer mass. In these cases, if the resection and the gastroenterostomy had been performed in one seance, not only would there have been an unnecessary hazard as to life, but a needless operation would have been performed. These cases show that an absolute differential diagnosis between ulcer and cancer cannot be made by the surgeon either before or at the operation; and that in certain borderline cases even the diagnosis of the pathologist is not final—just as in cases of leg ulcer the pathologist cannot tell whether the displaced epithelium is coming or going. If the growth be penetrating, it is cancer; if produced merely by a normal healing process, it is not cancer. In certain borderline cases, the submission of specimens to equally competent pathologists has elicited diverse opinions.

If the patient is dismissed from the surgeon's care to the same habits of life and the same dietetic carelessness that existed when the ulcer originated, and if in certain cases mouth infections and teeth defects are uncorrected, then there is bound to result a certain percentage of failures. It is just as illogical to exercise no care over a post-operative

ulcer patient as it would be to dismiss a post-operative exophthalmic goiter patient without therapeutic instructions and prolonged oversight.

In hemorrhage from gastric or duodenal ulcer, its immediate arrest may be accomplished by utilizing the following great principle in biologic adaptation:

As a defense against death from hemorrhage a mechanism has been evolved for increasing the coagulation of the blood as the death point approaches. Increased coagulation with a normal circulation would hazard life as the clot might be washed along as an embolus, but with the low pressure and the faint circulation near the death point, clotting becomes safe. As in phylogeny, hemorrhage was the preëminent cause of death and of unconsciousness, this defense mechanism may be called into action by any cause that lowers the blood pressure or even by the fear of catastrophe, or by the sight of blood, and the similitude of the pre-death point is produced, namely unconsciousness or *fainting*. It is logical, therefore, to utilize the fainting point clinically as an indication that the blood-pressure is sufficiently low for the hemorrhage to be safely arrested by coagulation.

The patient being kept under continuous observation and control, an attempt is made to bring him to the fainting point by having him sit upright in bed. If the upright position does not produce blanching, a thready pluse and a moist forehead, then the blood may be sequestered in the extremities by adjusting a tourniquet around the thigh just tightly enough to block the venous but not the arterial flow. In this way enough blood may be tentatively removed from the general circulation to reduce the blood pressure until the fainting point is reached. The length of time this point should be maintained is empiric, but a brief period is sufficient to assure the formation of a secure clot at the bleeding point. Not only are the open blood vessels plugged, but the patient has left in his body plenty of blood to flood the blanched brain when the bandages are released and the posture altered. Thus we evoke the last ditch defense as seen in the death-point arrest of hemorrhage in typhoid, in tuberculosis, in extrauterine and birth hemorrhage. We beat death by saving the blood—we eat the biologic cake and save it too.

C. RELATIONSHIP OF THE THYROID GLAND TO GRAVES'S DISEASE

In considering the cases of Graves's disease which have been surgically treated in the Lakeside Clinic, we have found that three facts stand out prominently: first, in every instance the thyroid was enlarged; second, the histologic changes in the thyroid were neither constant nor

characteristic; and third, in every instance, resection of the thyroid improved or cured the disease. In view of these facts, how shall we decide whether or not hyperplasia of the thyroid is a characteristic of Graves's disease?

A study of the cases at the Lakeside Clinic shows that the percentage of occurrence of hyperplasia varies from year to year. The presence of hyperplasia apparently depends upon the intensity of the disease, its duration and the stage of the disease at which the operation was performed—whether before or at the height of the hyperplasia; whether after the hyperplastic stage has been succeeded by the colloid stage; or whether, on the other hand, the drive had been so intense that the thyroid cells themselves had been destroyed, so that the gland consisted almost entirely of fibrous tissue, in which case no hyperplasia existed. It is true, however, that the clinical signs enable us to predict this histology correctly in ninety per cent of the cases. It should be added that in our clinic we do not recognize thyrotoxicosis, but classify all cases as Graves's disease.

That hyperplasia is not a characteristic of Graves's disease is shown further by the following facts:

(a) The excision of a sufficient amount of a colloid goiter or of an adenoma in a typical case improves or cures the disease just as it is cured or improved by the excision of a hyperplastic gland. It must be added, however, that as a rule the most striking relief comes after the excision of the hyperplastic gland in cases in which the duration of the disease has been short but intense. Nevertheless, the degree of surgical relief is independent of the histology of the gland.

(b) Although in Graves's disease the most intense hyperplasia may be found in exceptional cases, on the other hand, among the total number of hyperplastic thyroids which at this moment exist in the United States and Canada, only a small percentage are incident to Graves's disease. In most pregnant women, in many adolescent girls, in a large proportion of advanced cases of tuberculosis, and in numerous cases of intense prolonged pyogenic infection, the thyroid is not only hyperplastic, but the histological picture is identical—no one could look through the microscope and say this is the hyperplasia of Graves's disease, this of pregnancy, this of tuberculosis—and there are a few cases in which hyperplasia has followed the excision of too much thyroid gland and no iodin has been given. On the other hand, in only from 50 to 75 per cent of the cases of Graves's disease, a negligible group compared with the groups enumerated above, is the thyroid hyperplastic. We are forced to conclude, therefore, that hyperplasia of the thyroid is

no more the cause of Graves's disease than it is the cause of pregnancy or of tuberculosis or of adolescence. In each case hyperplasia is an end-effect, not a cause. But here the analogy ends, for although resection of the thyroid does not end pregnancy; does not assist adolescence; does not cure the infections; it does mitigate or cure every case of Graves's disease.

Why does surgery mitigate some cases and cure others—why are there occasional relapses? It is in this inquiry that we shall find our best cue to the relationship of the thyroid to Graves's disease, and to the reason why the disease is so strongly controlled by surgical measures.

In our case histories we find that in the cases not wholly relieved or in which partial relapses occurred after temporary relief, the causes of the relapse may be roughly classified as follows:

(a) *Psychic drive.* In this class we find patients who have been threatened with the loss of, or have lost positions of importance and have no other means of support, especially if they have others dependent upon them. Among these are daughters with dependent mothers, the relapse occurring when the loss of the position is threatened. Relapses appear among teachers, stenographers, telephone operators, etc., but are rare, as is the occurrence of the drive, among those who earn their living by physical labor—laundresses, cooks, scrubwomen. The more intense the struggle of man against man, the more difficult it is to cure Graves's disease completely. The disease is rarely found in the degenerate, or in idiots, or in moral defectives.

As an experiment, I sent some patients, whose disease had grown on the soil of the struggle against want and poverty, to a pleasant sanatorium, and relieved their financial strain through the assistance of a philanthropic patroness of the hospital; thus blocking the human relations drive. These patients, in their rapid convalescence and complete cure contrasted strikingly with those still swimming against the stream. Unhappily this beneficent prescription can be filled too rarely.

Other causes of a psychic drive, which we have seen cause relapse during the early months of convalescence, are the sickness and death of parents or children; financial disaster; exposure to grave danger, as a railway wreck, a fire, etc. I have had operative recoveries in which each of these misfortunes has occurred in the early months of convalescence, causing serious relapses.

(b) *Acute infection.* In some cases of Graves's disease, convalescence has been delayed, the patients have been made worse or have shown sudden relapse as the result of tonsillitis, an acute cold, a tooth-abscess, acute appendicitis, mastoiditis, diphtheria, etc.

(c) *Intestinal auto-intoxication.* Intestinal auto-intoxication occurs in the more chronic type of Graves's disease, and strictly speaking is not a cause of relapse, but rather a continued exciting primary cause. Unless the auto-intoxication is recognized and controlled from the beginning, only a partial relief may be expected.

(d) *Pregnancy.* Conception usually does not occur until Graves's disease is well in hand, but in some of my cases pregnancy has provided the drive that produced the relapse. With the termination of the drive by childbirth, the disease has subsided just as it subsides on the release from strain and worry, when an abscess is opened, etc.

(e) *Adolescence.* Graves's disease in the midst of the drive of adolescence presents a difficult problem, for whereas the drive of an acute infection, of a financial reverse, of hard work, of the danger of losing a position, of the illness or death of relatives—all these are controllable—the drive of adolescence is not controllable and operative results in the adolescent period are correspondingly less favorable.

We can see clearly, therefore, that the degree of completeness of the cure of Graves's disease, assuming that adequate surgical measures have been employed, depends upon the presence or absence of the forces that are capable of inaugurating the disease. In exophthalmic goiter we see the symptoms come and go as the stimulating forces of the internal and external environment ebb and flow; and in consequence we see the ebb and flow of the blood supply and of the size of the thyroid. Now since the thyroid has no physical connection with the outer environment excepting through the mediation of the sense organs and the nervous system, it follows that the thyroid changes are end-effects, not primary causes. If the driving organ, the brain, is undriven, the thyroid is quiescent. In Graves's disease the entire energy-transforming mechanism has been speeded by some driving force in the internal or external environment, and for some reason the acceleration continues even after the original driving force is withdrawn. Man's motor mechanism being automatic, there must exist inhibitors as well as accelerators, but in Graves's disease the mechanism is in a state of continuous self-acceleration from an, as yet, not understood defect. Once equilibrium is established over a period of time, by rest, by changing environment, or by operation, improvement or cure follows.

Now, the thyroid's primary, perhaps only function, like that of the adrenal, is the fabrication, storage and adaptive discharge of an activating chemical agent, just as the brain cells fabricate action currents. Speeding up any one of these three activators—the brain, the adrenals, the thyroid—speeds up the whole mechanism. If the activity of any one is depressed, then the activity of the whole mechanism is depressed.

No one of these organs can substitute for any other. Therefore, in that curiously altered state of the kinetic system in which even after the excitement is withdrawn, there remains an automatic speeding, if an essential link, like the thyroid, be depressed by operation, by so much will that great automatic drive, Graves's disease, be decreased. Quite obviously, the relief afforded by the removal of the thyroid gland could be equally well afforded by breaking any other link in the kinetic chain. The excision of a corresponding amount of the adrenals should be as effective. If a patient with Graves's disease could hibernate for a season, the disease would undoubtedly be cured; and we cannot doubt that it would be mitigated or cured by acute cerebral softening. By resecting the thyroid, therefore, we are simply checking the automatic speeding of the mechanism by breaking the most accessible link in the kinetic chain.

We conclude, therefore, that the exciting causes of Graves's disease are environmental stimuli; that although the thyroid shows no constant histologic lesions, and although the disease does not originate in the thyroid, nevertheless the thyroid plays a necessary part in the disease process; that surgical treatment exerts a specific effect upon the progress of the disease, but that maximum results demand a combination of surgical and medical methods.

PROCEEDINGS

OF THE

HOUSE OF DELEGATES

Asheville, N. C., Tuesday, April 17.

The House of Delegates was called to order by the Secretary, Dr. Benj. K. Hays.

The following county societies responded to the roll call:

Society.	*Delegate.*
Avery	Dr. Dr. W. C. Tate.
Buncombe	Dr. C. V. Reynolds.
Cabarrus	Dr. P. R. McFayden.
Carteret	Dr. K. P. B. Bonner.
Catawba	Dr. J. H. Shuford.
Davie	Dr. A. B. Byerly.
Davidson	Dr. J. R. Terry.
Greene	Dr. J. L. Carroll.
Guilford	Dr. W. M. Jones.
Henderson-Polk	Dr. L. L. Johnson.
Hoke	Dr. L. B. McBrayer.
Iredell-Alexander	Dr. M. R. Adams.
McDowell	Dr. B. L. Ashworth.
Mecklenburg	Dr. A. J. Crowell.
	Dr. Oren Moore.
	Dr. J. W. Squires.
Pasquotank-Camden-Dare	Dr. Oscar McMullan.
Pitt	Dr. C. O'H. Laughinghouse.
	Dr. M. T. Frizelle.
Stokes	Dr. R. G. Tuttle.
Surry	Dr. J. W. Ring.
Vance	Dr. D. C. Absher.
Wake	Dr. A. C. Campbell.
Washington-Tyrell	Dr. J. L. Spruill.
Watauga-Mitchell	Dr. C. A. Peterson.
Wayne	Dr. O. C. Daniels.
Wilkes	Dr. J. M. Turner.
Wilson	Dr. M. Saliba.

It was moved by Dr. J. E. S. Davidson, of Charlotte, that men from counties not represented be recognized as delegates representing their counties. Motion seconded.

Dr. C. O'H. Laughinghouse: It is moved and seconded that those who are here from counties not represented be made delegates from their respective counties, and that those counties who have a full delegation, such as Mecklenburg, that that full delegation be recognized.

Motion seconded by Dr. Hays; motion carried.

Motion made by Dr. J. E. S. Davidson to call the roll of the districts.

Dr. C. O'H. Laughinghouse: The purpose of this meeting is to organize the House of Delegates and to have the House of Delegates appoint or elect a Nominating Committee, and we will proceed with that now.

The following delegates were elected members of the Nominating Committee:

Society.	*Delegate.*
First District	Dr. Oscar McMullan.
Second District	Dr. K. P. B. Bonner.
Third District	Dr. Cyrus Thompson.
Fourth District	Dr. J. L. Carroll.
Fifth District	Dr. L. B. McBrayer.
Sixth District	Dr. D. C. Absher.
Seventh District	Dr. A. J. Crowell.
Eighth District	Dr. W. M. Jones.
Ninth District	Dr. J. H. Shuford.
Tenth District	Dr. Carl V. Reynolds.

Dr. C. O'H. Laughinghouse: Is there any further business before this House of Delegates?

Dr. Oscar McMullan: We have not heard reports from the Councilors of the Districts.

Dr. C. O'H. Laughinghouse: Shall we have that report now?

Motion that it be had at some later time made by Dr. D. C. Absher; motion seconded; carried.

Dr. Oscar McMullan: There is one question I wish to ask as a matter of information. Is there any way for a member to pay his dues except through the Secretary of his home society, and, if so, what is the law on the subject?

Dr. C. O'H. Laughinghouse: In order to settle that I will ask the Secretary to read the law on the subject. There is a section of the Constitution and By-laws stating how this may be done. It does not seem to be in the pamphlet, so I will ask the Secretary to read the law.

Dr. Benj. K. Hays: "An assessment of two dollars per capita on the membership of the component societies is hereby made the annual dues of this Society, which amount shall be collected by the Secretary of each county society from each of its members on or before the first day of March and forwarded to the Treasurer of the State Society before the first day of April in each year."

Dr. Oscar McMullan: Then there is no other way by which dues can be paid into the State Society?

Dr. Hays: That is the prescribed way.

Dr. Oscar McMullan: Is there no other known way; could any circumstance or condition arise by which a member might be permitted to pay his dues over the head of his local Secretary directly into the State Society? This is a question I would like to have settled for future purposes.

Dr. L. B. McBrayer: With all kindest regards to Dr. McMullan, I feel inclined to make the point that there is nothing before the House of Delegates pertaining to any such question, and it is probably not in order to bring up in that particular way. I do not want to—I do not know the doctor's motives at all—and I do not want to cut him out at all, but that is the reason I am presenting.

Dr. J. E. S. Davidson: There is an exception somewhere in the By-laws in which the fees can be paid direct.

Dr. McMullan: I would like to see that law.

Dr. K. P. B. Bonner, Morehead City: I move that Section 1, Chapter XI, of the By-laws of the Medical Society of the State of North Carolina be amended by striking out the word "two" in line one, being the fourth word in the said line, substituting, or inserting, in lieu thereof, the word "three."

Motion seconded by Dr. L. B. McBrayer.

Dr. C. O'H. Laughinghouse: Would it not be a good idea to let the resolution be read?

Section 1. An assessment of three dollars per capita on the membership of the component societies is hereby made the annual dues of this Society, which amount shall be collected by the secretary of each county society, from each of its members, on or before the first day of March, and forwarded to the Treasurer of the State Society before the first day of April in each year. The secretary of each county society shall forward a statement of its assessment, together with its roster of all officers and members, list of delegates and list of nonaffiliated physicians of the county, to the Secretary of this Society on or before the first day of April in each year.

This amendment increases the annual dues of the Society from $2.00 a year to $3.00.

Dr. K. P. B. Bonner: I did not think it was necessary to preface my remarks in any explanation as to why it was necessary to do this. This is another instance by which the North Carolina Medical Society has suffered as a result of the increased cost of living, or rather not only the cost of high living, but the high cost of living.

Dr. C. O'H. Laughinghouse: I feel this Society will willingly devise ways and means to meet its necessary obligations and it will gladly bear its proportionate part in this fight against the high cost of living.

Motion carried.

Dr. L. B. McBrayer: In accordance with the President's Address I have prepared an amendment to the Constitution in regard to the office of Secretary and Treasurer, which I am going to introduce. The law requires that it lie over for a year.

Dr. L. B. McBrayer moved the following amendment to the Constitution, which was duly seconded, and, according to Article XIII of the Constitution, was laid over until next annual meeting:

Resolved, That Article VIII, sec. 1 of the Constitution be amended by striking out the second comma and the word "a" following it in second line, and inserting in lieu thereof a dash, so that the phrase "a Secretary, a Treasurer" will read "a Secretary-Treasurer."

Resolved, That Article XIII, sec. 2, be amended by striking out the comma in line two and inserting in lieu thereof a dash, so that the phrase "The Secretary, Treasurer" shall read "The Secretary-Treasurer."

Dr. L. B. McBrayer offered the following amendment to the By-Laws, which was allowed to go over until next annual meeting, to be brought up immediately following action on the amendments to the Constitution.

Resolved, That wherever the word "Secretary" or the word "Treasurer" occurs in the By-Laws of this Society each and every of the said words shall be made to read "Secretary-Treasurer."

Dr. C. O'H. Laughinghouse: We considered that last night and looked at it this way, that the laying of this recommendation before the house last night would put it before the House of Delegates for a day, and we can pass on it now. That is why we brought it up last night, for that particular purpose.

Dr. L. B. McBrayer: That would read Secretary-Treasurer with a hyphen between instead of Secretary with a comma.

Dr. C. O'H. Laughinghouse: The question as to whether this shall lie over for a year had better be discussed; and if, in your judgment, you think it is a part of precaution to let it lie for a year we will let it lie over.

Dr. L. B. McBrayer: It occurred to me that the officers were elected for three years and that the term will expire next year. Perhaps, therefore, it is just as well that it lie over. However, it does not make any difference to me.

Dr. C. O'H. Laughinghouse: This motion has not been put in a general meeting of the House of Delegates. Therefore, it has not been before the House a day as was the other motion that we just voted on. That being true, I shall rule that this resolution shall lie over until next year.

TREASURER'S REPORT.

April 14, 1916, to January 1, 1917.

Balance as per report April 14, 1916	$2,047.99
Dues	258.00
Interest	28.99
Total receipts	$2,334.98
Disbursements	2,543.81
Overdraft (covered by personal note of Treasurer)	$ 208.83

January 1, 1917, to April 15, 1917.

Dues	$1,926.00
Disbursements	272.91
Balance April 15, 1917	$1,653.09

ITEMIZED RECEIPTS.

January 1 to April 15.

Almanace	$ 22.00
Ashe	18.00
Avery	18.00
Beaufort	.....
Bertie	6.00
Bladen	2.00
Brunswick	.....
Buncombe	136.00
Burke	30.00
Cabarrus	34.00
Caldwell	12.00
Carteret	10.00
Caswell	2.00
Catawba	36.00
Chatham	14.00
Cherokee	22.00
Chowan and Perquimans	.....
Cleveland	30.00
Columbus	14.00
Craven	26.00

Cumberland	$ 32.00
Currituck	10.00
Davidson	40.00
Davie	10.00
Duplin	18.00
Durham and Orange	.....
Edgecombe	14.00
Forsyth	92.00
Franklin	20.00
Gaston	52.00
Granville	30.00
Greene	10.00
Guilford	114.00
Halifax	16.00
Harnett	34.00
Hoke	20.00
Henderson and Polk	30.00
Hertford	.....
Hyde	.....
Iredell and Alexander	36.00
Jackson	10.00
Johnston	40.00
Lee	18.00
Lenoir	26.00
Lincoln	18.00
McDowell	14.00
Macon and Clay	8.00
Madison	.....
Martin	26.00
Mecklenburg	.....
Mitchell	2.00
Montgomery	18.00
Moore	.....
Nash	56.00
New Hanover	.....
Northampton	28.00
Onslow	18.00
Pamlico	10.00
Pasquotank-Camden-Dare	38.00
Person	.....
Pitt	26.00
Randolph	24.00
Richmond	28.00
Robeson	30.00
Rockingham	4.00
Rowan	.....
Rutherford	20.00
Sampson	26.00
Scotland	24.00
Stanly	30.00
Stokes	18.00
Surry	46.00

Swain	$ 12.00
Transylvania	10.00
Union	18.00
Vance	20.00
Wake	138.00
Warren	12.00
Washington and Tyrrell	16.00
Wayne	
Wilkes	20.00
Wilson	44.00
Yadkin	.....
Total	$1,926.00

RECEIPTS ITEMIZED.

From April 14, 1916, to January 1, 1917.

Balance on hand as per report	$2,047.99
Beaufort	2.00
Bertie	2.00
Buncombe	2.00
Burke	2.00
Caldwell	2.00
Chowan and Perquimans	4.00
Craven	4.00
Cumberland and Hoke	38.00
Currituck	4.00
Davidson	8.00
Gaston	2.00
Guilford	2.00
Harnett	2.00
Hertford	2.00
Hyde	12.00
Iredell and Alexander	4.00
Jackson	6.00
Johnston	4.00
Lenoir	2.00
Madison	18.00
Mecklenburg	10.00
Moore and Lee	10.00
Northampton	2.00
Rowan	4.00
Rockingham	22.00
Rutherford	42.00
Stokes	22.00
Stanly	20.00
Wilkes	4.00
	$2,258.00
Interest on money	28.99
Total receipts from April 14, 1916, to January 1, 1917	$2,334.98

DISBURSEMENTS ITEMIZED.

From April 14, 1916, to January 1, 1917.

1. E. M. Uzzell (Printing Envelopes)		$ 9.70
2. Hotel Malbourne (Stenographers' Bill)		11.75
3. Benj. K. Hays, M. D. (Incidentals)		5.00
4. Miss Josephine Tonnoffski (Reporting Meeting)		41.75
5. Wm. M. Jones, M. D. (Postage)		6.00
6. Benj. K. Hays, M. D., Secretary (Salary)		600.00
7. Wm. M. Jones, M. D., Treasurer (Salary)		150.00
8. Oxford Orphan Asylum (Printing)		63.00
9. Oxford Orphan Asylum (Printing Stationery)		24.75
10. K. P. B. Bonner, M. D. (Postage)		6.50
11. S. W. Minor (Cash advanced Mrs. Summers, Stenographer)		32.23
12. Miss Josephine Tonnoffski (Services Rendered)		150.00
13. Miss Josephine Tonnoffski (Cash advanced for postage)		91.25
14. Edwards & Broughton (Printing Transactions)		1,351.88
Total		$2,543.81
Total Receipts	$2,334.98	
Disbursements	2,543.81	
Overdraft (Covered by personal note)		$ 208.83

DISBURSEMENTS ITEMIZED.

From January 1, 1917, to April 15, 1917.

1. Wm. M. Jones, Jr. (Note of $208.83 and Interest for 60 days)	$210.91
2. Oxford Orphan Asylum (Envelopes and Invitations Tri-State Soc.)	5.25
3. Benj. K. Hays (Stamps and Postal Cards)	50.00
4. W. H. Fisher Co. (Printing 500 Postal Cards)	6.75
Total disbursements	$272.91

Dr. K. P. B. Bonner: I move that the report of the Treasurer as read be accepted, and that as a suggestion we hear the report of the Finance Committee and the result of their auditing of the Treasurer's books. That will facilitate matters and enable us to get through.

Motion seconded and carried.

REPORT OF FINANCE COMMITTEE.

Your Finance Committee beg leave to report that they have examined the receipts and disbursements of your Treasurer, Dr. William M. Jones, and find them to be accurate, correct and in balance.

C. V. Reynolds,
H. D. Walker,
Committee.

Dr. B. K. Hays: There have been two new county societies organized in Hoke and Ashe counties. In conformity with custom a charter has been made out, signed properly, and sent to these counties, but that action, since only the House of Delegates can grant a charter, must be confirmed by the House of Delegates. I move that the House of Delegates confirm the charters issued to the counties of Hoke and Ashe.

Motion is seconded and carried.

Dr. R. J. Tuttle: It has been suggested by a gentleman that presented his certificate for reduced rates on the tickets that the railroad will not accept them.

Dr. B. K. Hays: The men who wanted the reduction are not here. Most of them have gone and it is impossible for me to make an explanation to them. The reduced rate was based on the selling of two hundred tickets on this reduction. Not over fifty, I think, were sold. That was the ruling of the commission dealing with me by mail. The agent here in Asheville has demanded that I collect the tickets from the various members, take them to him over his signature, for me to witness them, and then bring them back and disburse them among the guests. I asked him if he thought it was possible to get together all the English sparrows in Asheville, to which this would be similar. The reduction cannot hold. I am very sorry, and I wish I had the opportunity to make an explanation to all the gentlemen. The conditions were absolutely impossible to meet.

Dr. K. P. B. Bonner: I have a report to make relative to the work of the Board of Councilors as a whole with certain recommendations, and then each individual councilor will make his report.

Dr. K. P. B. Bonner: The Board of Councilors have instructed me to call your attention to the recommendation of the Board at the Greensboro meeting of Dr. William Seeman Bainbridge, of New York, for honorary membership in our Society. By an oversight, due to a press of other matters, the House of Delegates failed to act on the recommendation. We now recommend his election to honorary membership in the Medical Society of the State of North Carolina, even though he is not present at this meeting.

Motion to elect Dr. Bainbridge seconded and carried.

Dr. K. P. B. Bonner: The following action was taken, after a careful consideration of it. By a unanimous vote, we, your Board of Councilors, beg leave to report that, after hearing all the evidence from both litigants in the Walker-Pasquotank-Camden-Dare County case, and after a careful consideration of all the aspects of the case, we find that

the charges as preferred against Dr. H. D. Walker have not been sustained and that he is not guilty as charged. It is hereby ordered that he be allowed to enjoy all the rights and benefits of the Pasquotank-Camden-Dare County Society at once.

Dr. C. O'H. Laughinghouse: There is no necessity for voting on this, as action is final in the Board of Councilors.

Dr. L. B. McBrayer: I would like to know how that order is going to be served. I think that order ought to be served on that Society so that we will know they have received service, and I would like to know whether the Councilor should serve the notice or the Society's Secretary. I will state when the speaker was presiding over the House of Delegates, he ruled that was not proper to appear in the minutes, but in view of the trouble that we have had with this matter I think that ought to appear in the minutes, and I am in favor of putting it in. Then it occurs to me that the President and Secretary of the Society ought to serve a written notice on the President and Secretary of the Pasquotank-Camden-Dare Society in regard to this, over their signature, and sent by registered mail with return card. If the chair does not concur with me I will be glad to change.

Dr. C. O'H. Laughinghouse: Without objection, and I am submitting this in order to get whatever objections may arise, the chair will adopt the following course: it will first have a written report from the Councilors as to what their orders are; it will next take those orders and affix to them the seal of the Society, the signature of its President for 1917, and the signature of its Secretary, which paper will be sent by registered mail to the Secretary of the Pasquotank-Camden-Dare Medical Society, with the request that they acknowledge receipt of same, and if we are shy on that receipt we will have the registered mail's receipt, and then the President, the Secretary and the Board of Councilors will get together and sing, "Praise God from whom all blessings flow," and the thing will be closed.

Dr. C. V. Reynolds, Asheville: If they refuse to act will it have to lie *in statu quo* for another year, or can you take it up in the interim? We do not want Dr. Walker deprived of the rights that he is entitled to.

Dr. H. D. Walker: Why cannot the Councilor of the Second District be ordered by the House of Delegates to close the matter?

Dr. Laughinghouse: Because we think we can do it better this way.

Dr. K. P. B. Bonner: I rather object to its being delegated to the Councilor of the Second District—to putting the duty of High Sheriff in his hands. I object to it.

Dr. Laughinghouse: We have voted it out of order.

Dr. C. V. Reynolds: I was wondering should the Society, after the receipt of the report, fail to act according to instructions, then will we have to wait for one year until we meet again before Dr. Walker can get the relief that we desire to give him, or can you take that up and settle it in the interim?

Dr. Laughinghouse: I take it that when they refuse, in the event they refuse his admission, that automatically rescinds their charter, and then we will write and ask them for that charter, and if they do not give it to us, why, we will make note on the Society's records that it has been rescinded and inform them to this effect. That is the solution of the problem as I see it, and that is what we shall do. About what time will the Society have the next meeting?

Dr. Z. Fearing: We have one more meeting after hearing the transactions of this Society before the fall. There will be a meeting the first Wednesday of next month. We will wait until about that time.

Dr. Laughinghouse: I will order this action to appear in the Transactions.

Dr. J. T. Burrus, High Point: I do not care to detain this body, but I come in the interest of the better scientific side of this association, and that is the question of making sections of this body. I believe that we are defeating the better scientific phase by dividing this Society, and suggest that we throw the entire session into one body. The reason is, the medical men need the experience of the surgeons, and the specialists and the surgeons need the services of the medical men, and when you divide and put the Society into sections you have defeated this end, and I believe if the House of Delegates, in your own good time, will some time look well into this side of it you will be acting in the best interests of the scientific side of this Society. It will be far better that we have less papers and better papers, and that the men could have free discussion and the program not be so long.

Dr. Laughinghouse: I take it this is a suggestion from Dr. Burrus. What shall we do with it?

Dr. McBrayer: I move it be referred to the Secretary to take such action as he sees fit.

Dr. Hays: I would be glad if the gentlemen would act on it because I have done the best I could. That does not meet the conditions at all. The Secretary has done the best he knows how. I would like to get an idea from Dr. Burrus about the practical working of the scheme he has in mind.

Dr. J. T. Burrus: I know this is according to the arrangement laid down by the American Medical Association. Dr. Hays has done well, exceedingly well, but I have observed for a number of meetings past that in the surgical section we had a very, very few men to gather to listen to the surgical papers, and that in the medical section a few men would gather together and listen to the medical papers. In this way the surgical people were not benefited; they did not have an opportunity of hearing the medical side of the question without including their side, and, therefore, these sections are entirely too small to get the best results as a whole, but if they could come together and if we could have one meeting, and if these papers could be heard by all the men of the Society I believe the Society, the scientific interests of the Society, would be benefited. It is only a suggestion. I hope you will please not misunderstand me.

Dr. Hays: There is no question that what he says is eminently true, but with three sessions running and we don't get through, what are we going to do with one?

Dr. W. M. Jones: I do not see any way of solving this question. I think that Dr. Burrus will agree with me that the surgical section was well represented, and when you go to a resort town you cannot get the fellows to go, anyway. If you go to a place where there is nothing much to see every section will be pretty well filled up. In the surgical section in Greensboro we hardly had room enough, and there were sixty-four seats. The same was true in Durham.

Dr. Laughinghouse: In the Medical Section I counted eighty-seven the first day.

Dr. Burrus: I would like to suggest that you appoint a committee to take under consideration the advisability and report at the next meeting.

Dr. Bonner: That seems to me to be placing Dr. Hays in a very embarrassing position, when we look back over the history of the Society. Dr. McBrayer's motion in the face of Dr. Burrus's suggestion places Dr. Hays in a very embarrassing position in that it is doing the very opposite from what he has done this year. Now, it seems to me that in looking back over the past history of the Society we have had more interest shown in the scientific side of our work when divided into sections than we did when the Society met as a whole. Why? Because a man had an opportunity then of attending and listening to the reading and discussion of papers in which he was interested. On the other

hand, when he had no choice in the matter, we had more or less confusion and inattention. It seems to me in the Morehead City meeting, it was conducted one right after another, in the Society as a whole, that about five men were the most that you saw listening to papers.

Dr. Hays: In the interest of time I think we can meet this condition this way. I had planned in my mind to send out blanks with questions and answers. I suggest, and I put this as a substitute motion, that I be permitted to send out blanks to a hundred men, to be named by the President. I will send a stamped envelope addressed to myself.

Dr. McBrayer: I am opposed to this. The Secretary can do that anyway. I know that when Dr. Burrus reads a paper he likes to have a crowd. I know a little better that when Dr. McBrayer reads a paper he likes to have a crowd. I am guessing about Dr. Burrus, I am not guessing about Dr. McBrayer. I do not see how in the present size of the Society and the present largeness of the program we could possibly get through with one section. I know at Greensboro, at the meeting there, there were three sections running at one time. I went around to the Eye, Nose and Throat section. They had been having meetings without appearing on the program at all. I went in and that room was running over and the folks were standing up around the walls, and it was the same in the general session. Where medicine was heard we always had a good crowd, ranging from fifty to a hundred and fifty, and the same was true in the surgical and gynecological sections, etc. I do not think there was a moment lost. I think it would be an injustice to the profession to put everything into one session. It would cut the papers down to less than half. There are two sides of the medical profession of North Carolina. One is for men like Dr. Burrus, who is doing splendid work, to come here and teach us, and the other is for men to write a paper for their own improvement and not for others, and I am rather inclined to think the more good is accomplished perhaps to the men who write the papers than the men who hear them. I think, as Dr. Jones has said, when we go to Morehead you can put them all in one section, or you can make three, they are going fishing and you cannot keep them from it, and I do not think we ought to try. When we come here they are going to look around and see the pretty girls and see the other sights. Those are the exceptions, and the other places will be the rule, and I think it would be a serious mistake. Dr. Hays has all the liberty he wants to submit suggestions to any man or any number of men he wants. I don't think that that as a motion is the proper

thing. As a matter of fact I think Dr. Burrus will admit that his purpose has been accomplished, and we might let it go without motion.

Dr. Burrus: It was my object to discuss it. My reason for making the suggestion is that I hear so many men speaking of this change, and a goodly number at this meeting. It suits me. I want to say that I get the benefit of the preparation of my paper, very much more than the fellow who hears it. I don't think we need a motion.

Both motions withdrawn.

Dr. Laughinghouse: My understanding is that there is a motion, properly seconded, in reference to arranging future programs, the substance of which is that such arrangement will be left entirely with the Secretary and the President of the Society.

The motion is carried.

Dr. Hays: With your permission the Secretary will not make any official report. We are so pressed for time, as we always are, but I want to recommend that some official notice be taken in the Society of the work done by the local county and district society, and the only way that I see to get that done would be to have a report, and these reports should be published in the transactions. I would recommend that a special meeting of the House of Delegates be held to hear these reports, in which nothing else should be considered, and that this meeting be held in the regular assembly room, that all the members of the Society might be present. There would be a time limit of thirty minutes and the meeting would be held before the session convenes.

Motion seconded by Dr. K. P. B. Bonner.

Dr. Hays: You will limit your man to a two minutes report, and probably you would get thirty reports. Have a special hour set aside at every session to hear these reports in which nothing else could be done.

Motion carried.

Dr. Bonner: In order to facilitate business and wind this thing up in a hurry, I move that the individual councilors be not called upon, but be allowed to file their reports written.

Motion is seconded and carried.

It was moved by Dr. C. DeW. Colby that the report of the Nominating Committee be accepted.

Motion seconded and carried.

REPORT OF COMMITTEE ON NOMINATIONS.

President ..... Dr. Isaac W. Faison..... Charlotte
First Vice-President ..... Dr. Wm. deB MacNider..... Chapel Hill
Second Vice-President ..... Dr. Joseph B. Greene..... Asheville
Third Vice-President ..... Dr. Ben. F. Royal..... Morehead City
Secretary ..... Dr. Benj. K. Hays..... Oxford
Treasurer ..... Dr. W. M. Jones..... Greensboro

Dr. J. L. Spruill, Columbia, Councilor for First District for unexpired term.

Delegates to Virginia State Medical Society: Dr. W. E. Warren, Williamston; Dr. T. B. Henderson, Henderson; Dr. J. C. Wiggins, Winston.

Delegates to South Carolina State Medical Society: Dr. Joseph Graham, Durham; Dr. J. R. McCracken, Waynesville; Dr. Oren Moore, Charlotte.

Committee on Scientific Work: Dr. R. F. Leinbach, Charlotte; Dr. J. W. McConnell, Davidson; Dr. B. K. Hays, Oxford.

Committee on Public Policy and Legislation: Dr. J. M. Parrott, Kinston; Dr. J. M. Templeton, Cary; Dr. L. B. McBrayer, Sanatorium.

Committee on Publication: Dr. B. K. Hays, Oxford; Dr. H. F. Long, Statesville; Dr. Addison G. Brenizer, Charlotte.

Committee on Obituaries: Dr. Isaac M. Taylor, Morganton; Dr. E. G. Moore, Elm City; Dr. J. F. Highsmith, Fayetteville.

Finance Committee: Dr. C. V. Reynolds, Asheville; Dr. H. D. Walker, Elizabeth City; Dr. W. F. Hargrove, Kinston.

Next place of meeting, Pinehurst.

Time of Meeting: Time to be selected by Committee on Arrangements during month of April.

Chairman Committee on Arrangements: Dr. L. B. McBrayer.

REPORT OF COMMITTEE ON PRESIDENT'S ADDRESS.

Your Committee on the President's Address report as follows:

The address is a most carefully considered document embodying the results of serious reflection on the many and varying phases of professional activity engaging the attention of North Carolina physicians. An address of unusually high character, it embodies suggestions which merit and should receive attentive consideration from the membership of this body, outlining, as it does, a resumé of the important matters treated of by recent State legislative enactments. It also contains material stimulation of intelligently progressive measures and opportunities for future consideration by those actively interested in the means and measures essential to the continued development of the best in the science and practice of our beneficent art.

We advise that the Secretary be instructed to procure its early publication in the lay press of the State. We further advise the careful perusal of it by every thoughtful member of our profession, believing its widespread dissemination of much value.

A number of papers presented, discussions had and resolutions offered during this session relating to vital topics, dealt with in the President's Ad-

dress, emphasize its great value as an index of the best current thought of the profession and will attest the earnest purpose of our titular head in keeping most careful watch over the responsible interests entrusted to his care during the year.

Respectfully submitted,

J. Howell Way,
John G. Blount,
J. W. Long,
Committee.

REPORT OF COUNCILOR OF FIRST DISTRICT.

I have been unable to visit the counties in my district during the winter months when there is usually less sickness and the doctors have less work and more time to meet in an effort to organize them, on account of an epidemic of grippe at home and being, during nearly all the winter, the only white doctor in my territory.

I visited the Pasquotank-Camden-Dare County Society, by request, to try to settle the difference between the society and Dr. H. D. Walker, which proved a failure. The society offered Dr. Walker reinstatement and an annulment of the sentence imposed if he would confess to error and express regrets, which he refused. The society decided that there was no use in going into the matter, as my decision would not be final. They handed me a typewritten copy of their case, to be held private and confidential, to study, and to present to this Board, which I now do. They assured me the proceedings were regular, which the minutes of their meetings will show.

W. H. Wood, *Councilor.*

REPORT OF COUNCILOR OF SECOND DISTRICT.

It is with a great deal of pleasure that I am able to report that the state of medical organization work in the counties in my district shows an improvement over that of last year. Those counties having live organizations have not lost ground and are still doing well. On the other hand, in a number of counties where interest seemed to be lagging, there has been revival and the profession are more and more coming to a realization of the importance of organized societies. The work taken as a whole was very discouraging at the outset of my efforts as Councilor in this District, but now seems to be bearing fruit.

We have a fair District Society that is capable of doing splendid work if supported by the profession. The attendance at the District meeting, while not all that could be desired, is encouraging, to say the least. With the leadership of Dr. C. B. McNairy as President, we expect to be able to show much progress in District Society work at the next meeting of the State Society.

K. P. B. Bonner, *Councilor.*

REPORT OF COUNCILOR OF FIFTH DISTRICT.

The set of counties composing the Fifth District are all organized and have regular meetings. The profession is better organized and the societies have a larger membership than at any period during the history of our District Society. While the work last year was the best of all, we hope for better things in the future.

BEN H. HACKNEY, *Councilor.*

REPORT OF COUNCILOR OF SIXTH DISTRICT.

I have the honor to report as Councilor of the Sixth District that all the counties in my District have local societies. Each and every county has its own Society, except Durham and Orange, and they are conjoined and known as the Durham-Orange Society. They have the largest enrollment of any society in the Sixth District except my own County Society, which is Wake County. We have a very good County Society, the largest of the Sixth District—there are on roll sixty-eight members. The average attendance during the year is fifteen. We have had eight new members to join. Our meetings are held on the second Thursday of each month during the year.

A. C. CAMPBELL, *Councilor.*

REPORT OF COUNCILOR OF EIGHTH DISTRICT.

In the Eighth District we have had two enthusiastic meetings, and had with us in each visiting members from other State societies. We have our leading counties well organized, which have their regular monthly meetings. I visited Wilkes County and succeeded in getting the Wilkes County Medical Society to reorganize; also visited Alleghany County, but so far have not been able to get the physicians together. In a few of our mountain counties there are so few medical men it is really almost impossible for them to keep up their organizations, and so far I have not been able to get them to attach themselves to the adjoining county societies. Also I find your Councilors labor under difficulties and are forced to make explanations or excuses for the Board of Medical Examiners in licensing men to practice medicine who are ineligible.

J. W. RING, *Councilor.*

REPORT OF COUNCILOR OF NINTH DISTRICT.

As Councilor of the Ninth District I hereby submit my report. I have eleven counties under my jurisdiction and all except three have societies. I have united some counties with the object of working up

new interest on the part of members. I think there has been a very perceptible gain in the District, and I hope to make a better record next year.

M. R. Adams, *Councilor.*

REPORT OF COUNCILOR OF TENTH DISTRICT.

Your Councilor of the Tenth District begs leave to make the following report:

The Secretary of every county of the Tenth District was written to this year and asked the following questions: "Has your county at this time an organized Medical Society? Name its President and Secretary. How often does it meet? Please give me the number of registered physicians in your county."

Replies were received from the following:

Dr. P. R. Bennett, of Bryson City, who in letter of March 16, makes the following report: "In pursuance to a call, Drs. A. M. Bennett, P. R. Bennett, D. R. Bryson, James DeHart, J. L. Reeves and J. A. Cooper met and organized a county medical society under the name of the Swain County Medical Society, the old society by that name having been abolished. The following were elected as officers: A. M. Bennett, President; James DeHart, Vice-President; J. L. Reeves, Secretary and Treasurer."

Dr. W. C. Morrow, Andrews, N. C., wrote that it was impossible to get their members to attend the meetings regularly; President, B. G. Webb; Secretary, J. E. Tedwill. Ten registered physicians.

Dr. Wilbur B. Robertson, Burnsville, N. C., stated that they had an organized Medical Society, and that J. L. Ray was President, and J. B. Gibbs, Secretary. Met at no stated time, number of registered physicians being seven.

Dr. B. L. Ashworth, Marion, N. C., wrote that they have an organized society, G. B. Justice being President, and G. S. Herby, Secretary. Meets two or three times a year, and the number of registered physicians in his county was twelve.

The following was received from Dr. F. L. Siler, Franklin: "We have a medical society. Dr. S. H. Lyle is President, and Dr. W. A. Rogers is Secretary. There has been no meeting that I know of in eight or ten years."

Dr. E. P. Mallett, Hendersonville, stated that Dr. B. F. Cliff is President, and E. P. Mallett, Secretary-Treasurer of their medical society. Meets monthly. Registered physicians, thirteen.

Dr. E. S. English wrote that Dr. Thomas J. Summey is Secretary, and Dr. W. J. Wallis, President of their medical society. Meets twice a month. Number of registered physicians, nine.

No replies from J. R. McCracken, Waynesville; Dr. Ed. J. Bryson, Cullowhee; Dr. N. B. Adams, Andrews; Dr. S. J. Lyle, Franklin; Dr. John B. Gibbs, Burnville; Dr. S. Howell, Robbinsville.

Your Councilor made an effort to have a District meeting; this step being taken on account of the present inactivity of the officers of the District Society. It was called to be held in Asheville at 2 p. m. at the City Hall on March 17. An invitation was extended through the Secretary to all the members of the County Medical Societies for voluntary papers. Little interest was secured and the time so limited between the call for the District meeting and the North Carolina Medical Society meeting to be held in Asheville, a second call for the District Society meeting has not been made, but every effort by your Councilor will be made to gather together a majority of the physicians in the Tenth District Society and have annual meetings.

C. V. Reynolds, *Councilor.*

REPORT OF CHEROKEE COUNTY SOCIETY.

To the North Carolina State Medical Society, when convened at Asheville, April 17th, 18th, and 19th, 1917, Greeting:

We, the Cherokee County Medical Society, would beg to report: Number of members, 9; average attendance of meetings, 66 per cent. On account of road facilities meet at Andrews from November to May, and from May to November at Murphy.

We have still Dr. W. O. Patton, W. H. Abernathy, of Murphy, and Dr. Sam Henry, of Suit, who are legitimate practitioners, but not members of our Society. We have Dr. Sam Patton, Dr. Styles Crawford, Dr. Mason, Dr. Sam McLemore, and perhaps others who are practicing illegally in Cherokee County.

Our meetings have, as you see by the percentage of attendance, been very interesting, and we are working for the ideal in this County Medical Society as was intended by those who have long since gone, and those who still believe in and love the science of medicine.

In this great crisis of international struggle our Society has offered itself almost as a unit for service in the Medical Officers' Reserve Corps. In a word, the Cherokee County Medical Society will be found ready to respond to the call of duty whenever and wherever it may be called upon.

N. B. Adams, *Delegate.*

The following Commissions were appointed, and those composing said Commissions were advised of their appointments and their duties in the following manner:

ASHEVILLE, N. C., April 19, 1917.

DR. A. W. KNOX, DR. H. A. ROYSTER, Raleigh, N. C.
DR. BENJ. K. HAYS, Oxford, N. C.

Gentlemen:—You are hereby appointed a Commission for the purpose of getting the resolution of the Medical Society of the State of North Carolina, introduced by Dr. A. W. Knox, and referring to expert witnesses, enacted into law. Yours sincerely,

CHAS. O'H LAUGHINGHOUSE,
President Medical Society of the State of North Carolina.

ASHEVILLE, N. C., April 19, 1917.

DR. W. S. RANKIN, Raleigh, N. C.
DR. JOSEPH B. GREENE, Asheville, N. C.

Gentlemen:—It gives me pleasure to appoint you as a Commission for the study of Social Insurance as it applies to North Carolina. You will kindly make your report to the Society at its next meeting, which will be held at Pinehurst during the year 1918.

CHAS. O'H. LAUGHINGHOUSE,
President Medical Society State of North Carolina.

ASHEVILLE, N. C., April 19, 1917.

DR. J. W. LONG, Greensboro, N. C.

Dear Sir:—A Historical Commission was decided upon for the State Society at its Asheville meeting. Your familiarity with the subject, your splendid address, your ability to do all things well, accentuated by the Society's keen appreciation for what you have already accomplished along these lines, prompts me to, and, I hereby appoint you as the Historical Commission for the Medical Society of the State of North Carolina.

You will kindly make your report to the Society at its meeting at Pinehurst in 1918.

CHAS. O'H. LAUGHINGHOUSE,
President Medical Society State of North Carolina.

ASHEVILLE, N. C., April 19, 1917.

DR. J. F. HIGHSMITH, Fayetteville, N. C.
DR. J. T. BURRUS, High Point, N. C.
DR. HENRY F. LONG, Statesville, N. C.

Gentlemen:—It gives me pleasure to appoint you as a Commission for the purpose of standardizing North Carolina Hospitals. You will kindly make your report to the Society at its meeting at Pinehurst in 1918.

CHAS. O'H. LAUGHINGHOUSE,
President Medical Society State of North Carolina.

ASHEVILLE, N. C., April 19, 1917.

DR. H. A. ROYSTER, Raleigh, N. C.
DR. J. G. BLOUNT, Washington, N. C.

Gentlemen:—You are hereby appointed a Commission to study the question of Statewide Examining Boards for the Medical Society of the State of North Carolina.

You will make your report to the Society at its meeting at Pinehurst in 1918.

CHAS. O'H. LAUGHINGHOUSE,
President Medical Society State of North Carolina.

CONJOINT SESSION

OF THE

STATE BOARD OF HEALTH AND THE STATE MEDICAL SOCIETY

Dr. C. O'H. Laughinghouse: This Society will please come to order for the purpose of beginning the Conjoint Session of the Medical Society of the State of North Carolina with North Carolina's Board of Health. In turning this meeting over to the President of North Carolina's State Board of Health, as President of this Society, I want to take the liberty of asking him to be as brief as he consistently and efficiently can in the holding of this meeting, so that the great question of medical preparedness may be brought before this Conjoint Session.

The thread upon which the meeting has been held this year in this Society has most largely been that of efficiency. The effort has been made to standardize the hospitals in this State, an effort has been made to take our program and arrange it in sections, an effort will be made no doubt, to start a North Carolina Hospital Association, all of which is most apropos at this time because it will show to the Council of National Defense that North Carolina and North Carolina's profession is meeting the requirements of modern efficiency in a way that becomes a patriotic and a prosperous State.

With these remarks I turn this meeting over to Dr. J. Howell Way, President of North Carolina's Board of Health.

Dr. J. Howell Way, Waynesville: The Fortieth Annual Session of the Conjoint Session of the Medical Society of North Carolina and the State Board of Health of North Carolina, will now be in order. Without further introductory remarks I will proceed to heed the kindly and, I believe, well-timed admonition of the President of the Medical Society to proceed as rapidly as may be consistent with the proper discharge of the duties we have before us. I will first call upon the Secretary, Dr. W. S. Rankin, for his report.

ANNUAL REPORT OF THE SECRETARY OF THE STATE BOARD OF HEALTH.

Messrs. Presidents and Members of the Conjoint Session of the North Carolina State Board of Health and the North Carolina Medical Society:

In accordance with the laws of the State, I desire to present the annual report of the Secretary of the North Carolina State Board of Health.

This report will be very brief, for two reasons: First, this Conjoint Session has other important matters to claim its attention; second, the biennial report of the State Board of Health, which appeared in February of this year and which any one can have for the asking, briefly and yet comprehensively covers the work of the State Board of Health during the biennial period ending December 1, 1916, leaving only four months of officially unreported work.

While the period of time not included in the recent biennial report is only one-third of a year, nevertheless within that brief period very important events in the public health work of the State have transpired. I refer especially to legislation, and I shall restrict the scope of this report entirely to the public health enactments of the recent General Assembly.

Speaking in general terms, I may say that the last General Assembly was very favorably disposed toward providing for the public health. I think there were three principal factors responsible for this attitude on the part of the General Assembly. The first factor was an uninterrupted growth during recent years in North Carolina and in the country generally of a stronger public sentiment favorable to human conservation. The second factor was the Governor of North Carolina, who, without any reflection whatever on former chief executives, may be safely said to be the most progressive and constructive public health Governor the State has had. In fact, Governor Bickett's position on public health has attracted national notice although his career as Governor is only beginning. The third factor was the possibility that some of the members of the General Assembly, on account of their having opposed the right of the people to know what they take in the form of drugs and the effects thereof, had some little misgiving of their conscience and wanted to "even up" by taking a liberal position on all other public health bills.

THE BILL PROHIBITING THE SALE OF SECRET REMEDIES

The State Board of Health, and many prominent in State affairs, thought that the time had come when the people of the State had the right to know the composition and effect of all drugs and preparations advertised, bought and consumed for alleged remedial effect. A bill requiring the composition of alleged remedies to be plainly and legibly printed on the package, and placing a sufficient graduated tax upon the sale of such remedies as to furnish the people the necessary information in regard to the effect of the ingredients, was carefully prepared after consultation with the leading national experts on the regulation of the sale of drugs. The bill was introduced in the Senate by Senator A. M. Scales, of Guilford, and an identical bill was introduced in the House by Hon. Henry A. Page, of Moore. Tremendous opposition to the bill soon developed. The opposition came from the American Wholesale Druggists' Association, the organization of secret remedy manufacturers of this country, but was expressed through the retail druggists of North Carolina. The opponents of the bill took the ground, (1) that the bill would hurt the retail druggists of the State, and, (2) that it was class legislation in behalf of the medical profession. The bill received an unfavorable report from both the House and Senate Public Health Committees, to which it had been referred. While this bill was pending and under fire, the opponents of the measure prepared and introduced a decoy bill, purporting to give the same relief sought in the Board of Health measure. The decoy bill passed and is now a law. This law is directed at the advertising of fraudulent remedies. This law is harmless and will do some little good, but it will not accomplish one-twentieth of what its proponents claimed for it, and what the majority of the members of the General Assembly who voted for the bill thought it would accomplish. The accuracy of this statement will be borne out (1) by the number of indictments against fraudulent advertising that will be brought in the next two years by those charged with the execution of this act, and (2) by a comparison of the advertising columns of the leading papers of the State now and two years hence.

THE QUARANTINE LAW.

Until the enactment of this law, the control of contagious and epidemic diseases in North Carolina has been a purely local responsibility. It has been left entirely to the counties and towns of the State to say whether or not they would control contagions and epidemics or not control this class of diseases at all. If a town or a county was careless, indifferent as to its responsibilities in this vital matter, it could, if it

desired, do nothing, and allow contagions originating within its borders to spread beyond and into other towns and counties, some of which, although careful and appreciative of their responsibility for the protection of their citizens, were helpless to protect themselves against infection from the careless county or town. The State has been powerless to protect the alert, intelligent, and careful county from contagion contracted from the apathetic, ignorant, and careless county. Another equally deplorable and inexcusable situation, developing out of the principle of treating contagion as a purely local problem, was that the State could not answer, much to our embarrassment, inquiries from her own citizens, other state governments, and the United States Government as to either the extent or the location of prevalent diseases within her borders; moreover, the State authorities could not warn counties towards which contagion was making its way and advise the adoption of valuable anticipatory preventive measures. Our weak position in epidemiological work has hurt the standing of the State among the sanitary authorities of the country. Thanks to the provisions of our new law, this unenviable position will no longer obtain.

The law provides: (1) The reporting to the county quarantine officer by physicians in attendance, or, where there is no physician in attendance, by householders, of known or suspected cases of contagious and infectious diseases. (2) The prescribing of minimum rules and regulations by the State Board of Health for the conduct of those concerned with the management of contagious and infectious diseases. Note the words *minimum* rules and regulations. If any town or county in the State wishes to adopt more stringent rules than those prescribed by the State Board of Health, such town or county, under the law, can do so. Adequate penalties for the enforcement of the rules and regulations prescribed by the Board are provided in the law. (3) A county quarantine officer in each county of the State, officially sworn to enforce the law and the rules and regulations which the Board prescribes; moreover, the quarantine officer may be removed from office for nonperformance of duty. In all counties having whole-time county health officers, the health officer, under the law, is quarantine officer. In those counties having county physicians the county physician is quarantine officer. (4) The following monthly compensation for county physicians acting as county quarantine officer:

	Per month
Counties with a population less than 10,000	$15.00
Counties with a population of from 10,000 to 15,000	17.50
Counties with a population of from 15,000 to 25,000	25.00
Counties with a population of from 25,000 to 40,000	35.00
Counties with a population of from 40,000 to 50,000	45.00
Counties with a population over 50,000	50.00

(5) That the county quarantine officer report, within twenty-four hours, all cases of contagious or infectious diseases reported to him by local physicians or householders to the State Epidemiologist, thereby providing adequate State records of the occurrence of epidemic diseases in the State, and through such records making possible State assistance to those counties in need of such assistance.

THE MEDICAL INSPECTION OF SCHOOLS LAW

This law was one of the specific inaugural recommendations of Governor Bickett. The Governor wrote the law himself. It is an admirable law. It places North Carolina far in advance of the average State and practically abreast of the best two or three states in the care of the health of school children. The entire credit for this piece of legislation belongs to the Governor.

The law provides: (1) A physical examination of every public school child in the State every three years. The three-year program makes it necessary for the State to be divided into three parts, and one part inspected each year. (2) A county medical inspector of schools, chosen, in those counties without whole-time health officers, by the county board of education from the regular registered physicians of the county. In those counties that have a health officer, the health officer is *ex officio* medical inspector of schools. The medical inspectors of schools are to be called together and their work is to be explained to them, and they are to be supplied with a brief, comprehensive manual on the objects and methods of medical inspection of schools. (3) A meeting of all the school teachers of the county early in September, when their duties as prescribed in the law will be explained to the teachers by the county medical inspector and the county superintendent of public instruction. (4) An examination by the teacher of every child in her grade or school in accordance with the directions of the county medical inspector and according to a teachers' manual which will be given the teacher. The teacher is to record the result of her examination of each child on blank forms which will be given to her by the county inspector. These cards, when filled out, are to be transmitted by the teacher to the county medical inspector of schools. (5) Through the physical records secured and turned in by the teacher the county medical inspector of schools is provided with an economic means for selecting, through the card records, the more seriously impaired school children of his county and of summoning the parent or guardian of such children to bring the children to his office on some Saturday at a specified time between the hours of 8:30 a. m. and 5:30 p. m. It is contemplated that the county medical inspector of schools will require about 10 or 12 per cent

of the total school population of his county to be brought before him so that he can confirm and enlarge the findings of the teacher, and point out the defects to the parents or guardians concerned and impress such parents or guardians with the importance of treatment. (6) $15 per day, or 60 cents per child examined, is to be paid by the county to the inspector for his work. (7) That the county medical inspector shall call a meeting of the physicians and dentists of his county to consider ways and means for having the children found to be seriously impaired treated. The law contemplates a special schedule of fees on the part of the doctors and dentists for this work, and also a small appropriation from the county and from the State, the State fund being already provided, as part payment of the cost of treating the seriously impaired school children.

THE RURAL SANITATION ACT.

The General Assembly conditionally appropriated the sum of $15,000 annually for the development of rural sanitation, the condition being that this fund should not be expended except in the proportion of $1 to at least $3 from other sources. Arrangements with the International Health Board are practically completed, which will almost certainly result in a supplementary appropriation of $15,000 annually from that Board, making a total available annual appropriation of $30,000 for the organization of county health work in a limited number of counties. At present it is anticipated that from two to three years will be needed in the organization of a county health department. It will probably be possible to handle from six to ten counties the first year, from two to five additional counties the second year, and four or five additional counties the third year. It is hoped and believed that the participating agencies—the International Health Board and the State—by renewals and extensions of this arrangement will be able to reach the counties of the State as rapidly, or about as rapidly, as the counties are ready to organize county departments of health.

THE LAW FOR THE PREVENTION OF BLINDNESS

This law provides the means for supplying all the physicians and midwives of the State with a suitable prophylactic solution for the prevention of ophthalmia neonatorum. It requires, under very rigid penalty, the use of such a prophylactic solution in the eyes of all newborn children. The law was very carefully drawn by a committee composed of Dr. R. H. Lewis, Mr. John E. Ray, Superintendent of the State School for the Blind, Mr. Gordon L. Berry, representing the National Association for the Prevention of Blindness, and the Secretary

of the State Board of Health. The law is one of the best laws of its kind in operation, and a minimum estimate of its effects will be the prevention of from 20 to 40 cases of absolute blindness each year.

HOTEL INSPECTION LAW.

The General Assembly passed a law requiring the inspection, grading, and publication from time to time of the grades of all hotels in the State, the bill making compulsory what, during the last year, has been a system of hotel inspection and grading optional with the hotels. The law is an admirable law of its kind, embracing all the essential features of hotel inspection work as practiced in the more progressive states and cities of the Union.

THE LAW REQUIRING THE INSPECTION AND SANITARY AND HYGIENIC CARE OF PRISONS AND PRISONERS.

This was one of the most important pieces of legislation enacted by the last General Assembly and probably the most needed legislation enacted. This law not only requires the inspection of all penal institutions of the State and counties by the State Board of Health, but makes the State Board of Health responsible for the sanitary and hygienic management of prisoners. In other words, public criticism of any county jail or chain gang in North Carolina will have to be answered by the State Board of Health, because the Board is required to keep in touch with the sanitary and hygienic conditions of such institutions and is given the power to require that such institutions shall be kept sanitary. While the State Board of Health did not propose this law, the Board of Health does recognize it as one of the most important pieces of sanitary legislation enacted by the last General Assembly.

In this brief review of recent public health legislation in North Carolina, I have only mentioned the more important pieces of legislation. I have not gone into details, and on account of the limited time at my disposal and other pending business, I have omitted to mention much public health legislation of comparatively minor importance but in reality of great importance. In conclusion, I may assert safely that the General Assembly of 1917 was the most constructive body of lawmakers in the protection of human health and life that the State has ever had.

W. S. Rankin, *Secretary.*

Dr. J. Howell Way: The report of the Secretary of the State Board of Health is now before the Conjoint Session for discussion, question and approval.

It is moved and seconded that the report be approved and adopted without discussion.

Dr. C. O'H. Laughinghouse: These are telegrams from absent members. It strikes me this is a good time to read them.

Kinston, N. C., April 16, 1917.

Dr. Chas. O'H. Laughinghouse,
President N. C. Medical Society.

Albert very sick. Please get J. W. Long to handle his section. I cannot attend because of Albert's sickness. You have no idea how much I regret not being with you. Wish you a great session. My heart is with you all. Regards to Society. James M. Parrott.

New York, N. Y., April 17, 1917.

Dr. Chas. O'H. Laughinghouse,
President State Medical Society.

Dr. E. C. Register sends hearty greetings to his fellow sufferers. Regrets forced absence, but is getting a new hold on life for years to come.

Wm. Seaman Bainbridge.

Dr. J. Howell Way: What disposition will be made of these telegrams?

The telegrams are ordered printed in the minutes.

Dr. Way: The next thing on the program is the election of two new members on the Board. As you are aware, the State Board of Health has nine members, five of whom are appointed by the Governor for the term of six years, four by the State Medical Society for a similar term. At this present session the term of four members expires, two of the Governor's appointees and two of those elected by the State Society. The Governor, at the beginning of this session, commissioned for a term of six years each Dr. J. Howell Way to succeed himself, and Dr. E. C. Register was commissioned to succeed Dr. W. O. Spencer, for twelve years past an honored member of the Board. The two vacancies to be filled by the State Medical Society are those of Dr. Charles O'Hagan Laughinghouse, of Greenville, and Dr. Thomas E. Anderson, of Statesville.

Dr. J. P. Munroe, Charlotte: After hearing the report of our valuable secretary, we are crossing a stream not very easy to get across. We are undertaking to establish in the counties real health work on a plan never before established in North Carolina, and I think it would be as well to retain in harness as many men as possible. I, therefore, recommend for reëlection Dr. Thomas E. Anderson.

Dr. A. J. Crowell, Charlotte: I don't think this Society could do a more important piece of constructive work during this meeting than to reëlect Drs. Laughinghouse and Anderson, and I move that nominations be closed and that the Secretary be instructed to cast the ballot for these two men to succeed themselves.

Dr. J. T. Burrus, High Point: In such positions are needed two very necessary qualifications. One of these qualifications exists in perhaps both of these men, but they especially exist, peculiar to each of the men. When it comes to goodness, nobody excels our friend, Dr. Anderson, of Statesville. From the standpoint of service, no one has given more to the State of North Carolina than has Dr. Anderson. When it comes to oratory and doing things, Dr. Charles O'H. Laughinghouse has few peers and no superiors. Because of this I take great pleasure in seconding the nominations of these two gentlemen.

Dr. M. R. Adams, Statesville: It affords me peculiar pleasure in seconding the nomination of Dr. T. E. Anderson of my town, who is regarded as one of our very best citizens. He has served well and efficiently on the Board, and I fully concur in Dr. Munroe's opinion that it is not a suitable time to change. If reëlected he will continue to be a valuable member of the Board of Health.

Dr. J. L. Spruill, Columbia: Has the motion been put?

Dr. Cyrus Thompson, Jacksonville: In answering your question, I want to state that the reason of Dr. Spruill's question is that he has a speech which he wants to deliver. I suggest that you invite him to make a speech.

Dr. Way: At the suggestion of our friend, the Chair takes great pleasure in asking Dr. Spruill to address us. The Chair ventures to suggest that a question that has been asked before is where Dr. Thompson got his information.

Dr. J. L. Spruill, Columbia: Dr. Laughinghouse does not need any speech. If his record does not bear me out in this thing he and his friends are willing to withdraw. If it does, vote for him.

Dr. J. Howell Way: It has been moved and seconded that Doctors Thomas E. Anderson and Charles O'Hagan Laughinghouse be declared elected their own successors for six years as members of the North Carolina State Board of Health. I call your attention to the fact that this shall be done by ballot. I will add that the Secretary be and he is hereby instructed to cast the ballot unanimously for these gentlemen.

Dr. W. S. Rankin: It gives me great pleasure to cast the unanimous vote of this Society in this conjoint meeting in favor of Dr. C. O'H. Laughinghouse and Dr. Thomas E. Anderson.

Dr. J. T. Burrus: The ballot has not been cast.

Dr. Way: The Chair regretfully, but truthfully, admits that technically he is out of order. Those favoring the adoption of the motion will signify it by saying "Aye," those opposing "No."

The Chair is pleased to announce to the distinguished surgeon from High Point the Chair is now in order. He, therefore, requests the Secretary to cast the ballot.

Dr. Rankin: The Secretary takes pleasure in casting the unanimous vote of the Society for the election of Dr. Thomas E. Anderson and Dr. Charles O'H. Laughinghouse to succeed themselves on the State Board of Health.

Dr. Way: The Chair, feeling certain again that he is in order, declares that Dr. Charles O'Hagan Laughinghouse and Dr. Thomas E. Anderson are duly elected to succeed themselves as members of the State Board of Health for six years.

Dr. Thomas E. Anderson, Statesville: You all show that you are utter strangers to me. The idea of anybody asking me to make a speech who knows me. In that capacity I am very much like an amateur engineer of an automobile. I am just as apt to touch the part of the machine which makes it run backwards as forwards. It is a usual sequence of gratitude, to inspire expression or speech, but I want to say to you here today, that your generous action invokes in me rather a deep sense of humility and really inspires silence. I feel a great deal more gratitude than I can express to you. Your action here today illustrates how easy it is for an office to find a man that is "willing." I feel as deep a sense of gratitude as that biblical gentleman did when that Judean maiden danced before him and so inspired his generosity that he told her that "anything in the world you ask I will give it to you if it is the half of my kingdom." She made a request of quite a different character, with which you are all familiar. That is similar to my gratitude to you now. I would freely give you the half of my kingdom, but as kingdoms right now are at a discount and tottering I don't think any one will call on me for it.

At some future time I hope to get my speech center so arranged that it will make a response in a fitting way to your action here today. In the meantime I hope to prove by my fidelity to this trust that you have made no mistake.

By the way, last night I was in a most learned and inspiring company, and heard a new center of speech mentioned, that did not have its origin in the medulla oblongata. One gentleman said that a student was asked what the physiological effect of alcohol was on the body, and he said that it found the "dam phool center in a man." I heard that last night from a source worthy of acceptation.

I am going to yield the floor in a moment to a man who can speak for both of us, my associate, Dr. Laughinghouse. I am going to tell you, however, that whatever there is in me, if anything has not as yet come to the surface, that what I am and what I shall be is going to be put heartily and cordially and always unstintingly at the disposal of my State as implied by a place on the North Carolina State Board of Health. I have not made it great, but you should know and do know that by reason of our alert, able Secretary, our State Board has acquired a National name.

I thank you more than I can tell you. Among the most treasured things I can hand down to my children are the favors and honors which this Society has conferred on me.

Dr. C. O'H. Laughinghouse: To say that I appreciate this compliment cannot express my feelings. Nothing can express my feelings; I cannot say more than that I appreciate it. I can say, however, and say truthfully, that I appreciate it deep enough to realize in the appreciation a strong, deep, fervent responsibility not only to you gentlemen, not only to the Board of Health, but to this great State in which we live. Saturated as I am with this sense of responsibility, it will be my pleasure, it will be my delightful privilege, to work earnestly, zealously, sincerely, conscientiously, fervently and sacredly, to bring about the things that go to make in this good State of ours men and women who will be the peers of any human beings that can in the future be bred upon this good earth of ours.

My friends, we have not time for talk, we have in this conjoint session something to do, we have the question of Preparedness to come before us, a question that ought to saturate the hearts and minds of every doctor in North Carolina toward the doing of his duty, so I will yield the floor to Dr. J. W. Long with the hope and the belief that from this meeting will come everything that needs to come, will come everything that ought to come, for the betterment not only of North Carolina, but for the United States of America.

Dr. Way: That concludes, I believe, the special business of the Conjoint Session as relating to the health work. Now we pass to another matter, and a matter that we approach in a spirit of gravity, of

reverence, and of profound appreciation of the responsibility that today faces the North Carolina doctors in reference to the question of National Preparedness.

To go back briefly just a moment, because by studying the past we gain inspiration for present and future endeavor. In 1861 this beautiful mountain city, this Asheville, the Queen City of the State, and of our fair Southland, was a little mountain village, miles and miles away from any lines of railroad and far distant from any artery of travel. When the tocsin of war sounded in '61 and the men of this State rushed to the defense, as they viewed it, of the same principles that their forefathers fought for in '76, a sturdy young mountain man went from Buncombe to the front at the head of the "Rough and Ready Guards," and the following year that same young stalwart mountaineer was elected by the vote of the citizens of North Carolina her Governor. In 1862 that giant of the men of the mountains, Zebulon Baird Vance, became the War Governor of North Carolina. Preparedness was his motto, and during the Civil War North Carolina, under the inspiring genius and eminently capabable leadership of this great man, sent to the front about eight thousand more Confederate soldiers than there were voters in 1860 in the State, a record achieved by no other State in the Union! Not only that, but from the fastness of these mountains there went to the other side to our brothers we were fighting (our brothers they were, and, thank God, they still are)! brave mountaineers, who, living aloof and distant from peculiar racial condition, those men could not see it as the bulk of our citizens saw it, and more than four thousand of these brave men were soldiers in the Federal army, making more than twelve thousand men under arms in the civil war, than we had voters in 1860. Time passed, the agony of war was ended, and the never-to-be-forgotten horrors of reconstruction passed over our heads, and in 1876 the people of North Carolina called to Zebulon Vance, saying, "Come back and lead North Carolina again." In January, 1877, Zebulon Vanve again became Governor of North Carolina, and within a few weeks after his inauguration as Governor there was enacted by his administration the most important constructive measure that was ever enacted, a measure that connects the mountains to piedmont, the construction of the Western North Carolina railroad and the turning of the trade and travel of this mountain section eastward. So by the construction of that road, travel and business interests previously going down the valleys to Tennessee, Georgia and South Carolina, was turned back and North Carolina was united with a bond of steel. Not only that, but under his leadership the law creating the North Carolina State Board of Health was passed at that session.

For forty years the North Carolina State Board of Health has striven for preparedness, for better men, physically, intellectually, morally, for better women (if that were possible in North Carolina), for better babies, for better times. The State Board of Health is preëminently a preparedness body. Today we are confronted with a repetition of the call of '61; but, thank God, it is not to fight our brothers, it is not to fight those of our own blood and of our kin, but it is a straight cut, a clean fight for the principles of 1876, the right of the people of this earth to govern themselves, the most immaculate God-given cause for which human blood was ever shed. Men of North Carolina, will you do your duty? The answer comes, you will, we will. We will do it at the front, in the office, on the farm, in the factory, wherever we be. North Carolinians may be depended on to do their full duty.

Gentlemen, I now take pleasure in introducing to you an officer of the Medical Reserve Corps, Major J. W. Long, of Greensboro, of the Medical Section Officers' Reserve Corps, U. S. A., who will address us upon the subject of National Preparedness and the duty of the members of the North Carolina medical profession in relation thereto.

Dr. J. W. Long, Greensboro: As you know, Dr. George W. Crile, of Cleveland, was appointed by the Council of National Defense to present the subject of Medical Preparedness on this occasion. Unfortunately, Dr. Crile was compelled to return to his home before this hour. It is with a feeling of timidity that I attempt to take his place. However, I will try and will present the subject in as few words as its importance will justify.

MEDICAL PREPAREDNESS

John Wesley Long, M.D., Major, Medical Officers Reserve Corps, U. S. A.

Mr. President and Fellows of the Conjoint Session:

I had the pleasure last evening of discussing with you the early history of the North Carolina Medical Society. Today is placed upon me the grave responsibility of presenting to you the future history of the profession in the Old North State. Whether or not upon that page of history we shall write the same character of glorious deeds, the same degree of loyalty to our country, the same unstinted measure of service to the stars and stripes remains for you to determine.

Under existing conditions it is desirable that every physician as well as every other loyal citizen of America should be prepared to render

active service to the Government. We should remember that the protection afforded by the Government has made it possible for its citizens to enjoy liberty, peace, and prosperity. The avenues through which the most effective service can be rendered by members of the medical profession have taken definite and concrete form. Briefly, the plan is that all medical activities shall coöperate with the Council of National Defense.

The Council of National Defense was created because Congress realized that the country is best prepared for war when thoroughly prepared for peace. From an economic point of view, there is now very little difference between the machinery required for commercial efficiency and that necessary for military purposes.

In both instances the whole industrial mechanism must be organized in the most effective way. Upon this conception of the national welfare the Council of National Defense was organized, in the words of the act, "for the creation of relations which will render possible in time of need the immediate concentration and utilization of the resources of the Nation."

The organization of the Council likewise opens up new and direct channels of communication between business and scientific men and all departments of the Government. Coöperation between these several interests will produce beneficial results to all concerned. It is hoped that the Council of National Defense will, in addition, become a rallying point for civic bodies working for the same patriotic end.

The Council of National Defense consists of the following men appointed by the President:

The Secretary of War, Chairman.
The Secretary of the Navy.
The Secretary of the Interior.
The Secretary of Agriculture.
The Secretary of Commerce.
The Secretary of Labor.

The Council of National Defense nominated, and President Wilson appointed, an Advisory Committee consisting of seven civilians: Mr. Daniel Willard, President of the Baltimore and Ohio Railroad, Chairman; Mr. Hollis Godfrey, LL.D., President of Drexel Institute, Philadelphia, Pa.; Mr. Howard E. Coffin, of Detroit (who is also chairman of the Committee on Industrial Preparedness of the Naval Consulting Board); Dr. Franklin H. Martin, of Chicago; Mr. Bernard Baruch, financier, of New York; Mr. Julius Rosenwald, Vice President of

Sears, Roebuck & Company, of Chicago; Mr. Samuel Gompers, President of the Federation of Labor. The two bodies meet in joint session at frequent intervals for the purpose of considering problems relating to national defense.

In April, 1916, the American Medical Association, the American Surgical Association, the Congress of American Physicians and Surgeons, the Clinical Congress of Surgeons of North Carolina, and the American College of Surgeons appointed a central committee of American Physicians for Medical Preparedness of which Dr. William J. Mayo was made chairman. The Advisory Committee of the Council of National Defense recognized this Committee for Preparedness as a medium through which it could deal with the profession of America, and Dr. F. F. Simpson of Pittsburg was made chief of the Medical Section of the Council of National Defense and Secretary of the American Physicians for Medical Preparedness. This in brief outlines the national organization for Medical Preparedness.

The National Committee has appointed a State Committee of nine for each State and Territory in the Union. The Committee for North Carolina consists of the following: Dr. C. O. Laughinghouse, Dr. Benj. K. Hays, Dr. C. W. Banner, Dr. M. H. Fletcher, Dr. M. H. Biggs, Dr. R. L. Gibbon, Dr. Jas. E. Stokes, Dr. D. T. Tayloe, Dr. J. W. Long, Chairman.

At the request of Dr. F. F. Simpson, Chief of the Medical Section, a meeting of the North Carolina State Committee on Medical Preparedness was held in Greensboro recently. Dr. Simpson met the Committee and a number of other prominent physicians and surgeons interested in Medical Preparedness and went over the whole situation.

The Surgeon General has granted to the State Committee the unusual privilege of receiving applications and making examinations at the same sitting without referring the papers to the War Department. This greatly facilitates the work and "speeds up" the commissions.

The Council of National Defense urges that every county in the State be organized into County Auxiliary Societies. To that we have been working industriously. Your State Committee has had the most active coöperation from leading physicians all over the State. The counties are being organized and physicians are rapidly enlisting in the Medical Reserve Corps. I feel proud that at a meeting of the Guilford County physicians held recently every man and woman (there were women physicians present) with the single exception of one man who was over age, signed up to serve their country whenever and wherever needed.

It is the fixed policy of the National Organization for Medical Preparedness that the various medical interests of each county be represented in the County Auxiliary Societies. This is done for the purpose of coördinating the important interests and activities so that the medical profession of the Nation may present a compact and effective organization for the purpose of aiding effectively in work of national defense.

The activities of the County Auxiliary Societies are various.

First. They should coöperate with the National and State Committees of the Committee of American Physicians for Medical Preparedness in their efforts to gain needful information regarding the civilian medical resources of their own communities, and in their efforts to coördinate civilian medical activities for prompt mobilization in case of need.

Second. Secure applicants for the service:

(a) For the Army Medical Corps.
(b) For the Medical Officers' Reserve Corps, 20,000 to 30,000. Medical Reserve Officers should be enrolled.
(c) For the Naval Medical Corps. which needs 350 or more additional officers.
(d) For the Coast Defense Reserve Corps of the Navy. Several hundred high-class reserve medical officers are desired.
(e) For the National Guard, such numbers as may be required to bring your local National Guard to full strength.

Third. Coöperate, individually and collectively, with the Medical Department of the Army, Navy, and Public Health Service, and with the Council of National Defense.

Fourth. Coöperate with the Red Cross in its efforts to bring that organization to the highest point of efficiency.

Among the duties of the County Auxiliary Societies, the chief one is to assist the State Committee in selecting and encouraging physicians of suitable age and fitness to apply for commission in the service. The County Society knows far better than the State Committee could possibly know who among its membership should be commissioned.

In the preparation for National Defense the first thing needed will be medical officers. Physicians recommended for such service should be of the highest type. They should be free from suspicion of addiction to drugs or drink. Medical officers who go to field duty should by preference be under the age of forty-five.

The War Department wants surgeons, internal medicine men, meaning thereby general practitioners, pathologists, specialists, and dentists. The need of men is urgent. The following telegram clearly states the fact.

WASHINGTON, D. C., April 17, 1917.

DR. BENJAMIN K. HAYS, *Secretary,*
Medical Society of North Carolina.

Have sent letter of instructions from Council of National Defense. Please see to it that the matter is presented, and especially urge every man to enroll in the Medical Officers' Reserve Corps.

FRANKLIN MARTIN,
Council of National Defense.

Applicants for the Medical Officers' Reserve Corps should be between 22 and 55 years, but preferably under 40, since the War Department writes that they are overloaded with men over forty and prefer younger men who are willing and ready to go to the front. A letter from Major Noble, of the War Department, received yesterday, urges the enlistment of men under 40. An applicant for service in the regular Army must be between 22 and 30 and must have had one year's experience in a hospital.

When application is made for commission in the Medical Department it does not necessarily mean that the applicant will be called for immediate service, but it is an evidence of one's patriotism and willingness to serve the country in this great hour of its jeopardy. While one can indicate what service he is best fitted for and would like, it must be left to the War Department to say when and to what work he will be called.

In conclusion allow me to express the confidence which I sincerely entertain, namely, that we may count on the physicians of North Carolina doing their duty. To them the stars and stripes are the emblem of freedom, of true democracy!

The medical service is one of the very few humanitarian features of war. This is true the world over. The history of what surgeons and nurses and litter bearers and ambulance drivers have done in the European armies reads like a romance. It stands out above all the slaughter and roar of guns and shouting of the captains like a beaming star of hope!

Fellow members of the profession, we must be up and doing. Despite the horrors of war and its agonies, to sit supinely by while a brutal highwayman creeps up in the dark and without warning slaughters our innocent women and children, not to speak of our men who are going about their daily vocations, is to invite the contempt of every red-blooded man of every clime. To meekly yield the highways of the seas to the ruthless destroyer is to say to the world, "We have not the courage, the backbone, to claim our own." To fail to rally to the colors in this hour of our nation's peril would be to create a heritage for our posterity that would make them blush with shame.

Young man, your country is calling you today. She needs you. Without you she must fail. With you she will surely win. If it should come to the worst and you fall while doing your duty, it will be with your face to the foe. You will have fought a good fight, defending the loved ones whom you left behind, defending the honor of your country, defending the flag under which you have lived and prospered. The glory will be yours, and it shall be said of you as was written upon the stones piled above the Spartan dead who died at Thermopylae, "Stranger, go tell in Lacedaemon that we lie here in obedience to her command!"

Dr. A. W. Knox, Raleigh: In this emergency of the Nation, *everybody* can find something to do for his *country*. The army of service and sacrifice for which the President calls should embrace every man, woman and child in the country. "The supreme test of the *nation* has come," said President Wilson in his proclamation to the Senate, "and every man's services must be at the disposal of his government to use as the government deems best." No man—whether old or young, boy or middle age—should stand aside today. Every man should respond to his country's call and be ready to do his bit. It has been my conviction, and I hold it still, that the one ground on which a man should be called to her service should be——not youth alone, nor age, but *capacity to serve*. I wrote this, in substance, to the Secretry of War not long ago, when I volunteered for service in any way he might deem possible. I regret to say that he wrote in reply that he wanted *men of maturity* and that I was *too young*. Yet I know I am capable of service—if not at the front, still in many ways at home; and I am ready, if the call shall come. I am proud to say that, already, I hold, by appointment, the chairmanship of the Auxiliary Medical Defense Committee of Wake County; and I hope we shall soon get good results from our work in that great county. We aim to have old Wake County lead the van.

Dr. W. S. Rankin: This is one time and place where we can meet certain charges. It is one of the greatest opportunities that we have ever had. I have seen your representatives in Raleigh vote down important legislation in the belief that you and I are governed deep down in our hearts by selfish motives. I saw it done this year. I saw the legislature vote down important measures, drawn in the interest of the public, on the ground that those measures had to do with the selfish interests of the medical profession. The country calls on the medical profession for service. The North Carolina medical profession does not want the medical profession in Tennessee, or South Carolina, or any-

where else to sign up a larger number of volunteers when our country calls than it does. Now is the time to save your own profession and to save the State. We must have more volunteers than any State in the Union in proportion to the doctors practicing here. So the call is to you, not only as citizens of North Carolina, but as members of your profession. We ought to be able to say to the Legislature in the future that a larger number of our members volunteered than any other kind of organization. They are not asking the Christian Scientists or the Osteopaths. Why are they calling on us? We want the people generally to note this fact, and when our country does call we want to disprove for all time that our relation to the public is a selfish relation. We have boasted a long time of our leadership in educational work and in social matters generally. Now, let us prove it because the proof is called for. There is nothing big about this matter. As my friend, Dr. Knox, has said, it is a matter of just ordinary duty. We must simply say to our country, to the country for which our fathers gave their lives, that we are here for your disposal. They are not going to call us unless we are needed.

I think it is the duty of every doctor in North Carolina, of every member of the North Carolina Medical Society, for the sake of his Society, for the sake of his State, and for his own name and for his children, to say to our country we are willing to serve when and where you need us.

Dr. C. O'H. Laughinghouse: Before Dr. Glenn speaks I would like to offer the following resolution:

Wherever in the time of war or peace the services of North Carolina's medical profession may be needed that we, the profession of North Carolina, willingly and gladsomely respond to the call; that we endorse the action of President Wilson and of Congress in this time of war, and that as a Society and as a profession offer to him our services unselfishly, gladsomely, willingly, patriotically, to do with us as he wishes.

Seconded by Dr. A. W. Knox; moved that its adoption be signified by a rising vote; motion unanimously adopted.

Dr. Eugene B. Glenn, Asheville: If I had the eloquence of the men who have just spoken I could in a degree express my feelings.

First, I wish to say the thing that is uppermost in our minds, after these patriotic speeches is "What can I do?" The day of patriotic eloquence is passed and the dawn of action is rising. Dr. Rankin has clearly and eloquently stated our duty and obligation to our country and has shown our importance as medical men as compared with the various "pathies" that have been recognized by our State Legislature. The Government does not want them.

What can you do? There is a number of men among us today who cannot go to the front, but there is so much to be done at the rear, the conservation of home interests and the various industries. There is one thing every man of us can do, and that is secure a recruit for the line. One of the most important things in the mind of the Government in organizing our noble profession is that we, as medical men, know more of those who are physically fit to do service in the trenches than any other profession or trade. Dr. F. F. Simpson, Chairman of Medical Section, Council National Defense, stated in Greensboro at Dr. Long's residence a short time ago, at a meeting of the State Committee of National Defense, that it costs $3,500 to give a man six months' training. Therefore the importance of only those who are physically qualified to enlist. For you see if in three months, or six months, after he has enlisted, he has to be cared for at the expense of the Government and probably be a continued charge of the Government, and enough of such charges will mean millions and millions of dollars to be paid out in pensions!

It has been stated that no regiment is faster than its slowest man. You should encourage every young man who is physically fit to enlist, and it is equally your duty to discharge those who are not physically fit for service in the line. But point out to them the great number of things they can do for their country at home. A true soldier never asks anything except an opportunity to do his duty whenever called and where. Every one of us who has had military experience knows this to be true. We should not know, it is not intended for us to know beforehand, we await orders. If we knew ahead of time, the enemy would also know and would be prepared to meet us.

For twenty years I have been subject to call in the service of this State. I enlisted as a private in 1898, hoping to be called in the Spanish-American war if there should be a second call. Since 1905 I have held a commission, Major Medical Corps N. C. N. G. In 1911 I was the first medical detail sent out from this State to the Mexican border for observing and reporting maneuvers of the United States Army, and I see more clearly today perhaps than those who have not had an opportunity to observe our military operations, the need of action by every man. Colonel Williams, then 65 years of age, in command of the 11th Infantry, U. S. A., said to me in Division Quarters in San Antonio, "Major Glenn, when you return home, tell the boys back there if this Nation ever gets into serious conflict with any other great nation, the war will have to be fought by them, as there is not enough of us to start a war."

I hope, as has been suggested, that every man will volunteer his services to do whatever he can do best in defense of his country. And when that is done, you have done your full duty, whether you are caring for the people at home or the boys in the line.

At a patriotic meeting at Battery Park Hotel recently, participated in by 100 Knoxville business men and the business and professional men of Asheville, a Mr. Joseph A. Shiffer, of Knoxville, a full-blood German, and at one time an officer in the German Army, brought forth tumultuous cheering when he declared that a nation is infamous that does not stake all on her honor; that there is no flag but the stars and stripes, and that he was ready to die under its folds.

Dr. A. W. Knox: One other thought comes to me. It seems to me of vital interest and importance that we should put before every doctor in every county, in the strongest possible way, a paramount conception of his duty and privilege. With that end in view, I move that this Society order the immediate publication of Major John W. Long's address on Medical Preparedness—so admirably delivered before you today—and give it a widespread presentation to the public in the important newspapers of the State, the latter to be chosen by the State Committee on Medical Preparedness.

Dr. J. T. Burrus, High Point: I feel that it is an imposition to make remarks after the learned gentlemen that have just preceded me. Immediately following the doing away with the contract surgeon and the establishing of the Medical Reserve Corps, I went to Washington and took my examinations to become a member of the Medical Officers' Reserve Corps, which commission I have held since the establishment of this army post, and I happen to be the first man commissioned for the Medical Officers' Reserve Corps from North Carolina. One of my friends here today was with me and we saw the mobilization of the first British and Scotch army, and in the discussion we said, what could our puny forces do with even such an army as this? When a country has furnished such freedom as ours has furnished us, when we have had such a wonderful prosperity, which every one has so much enjoyed, then when our country wishes our services it is nothing but right that we should offer our services to the country and let the country say where they want us to serve.

Dr. J. W. Long, Greensboro: I desire to make an announcement. For the convenience of the physicians attending this session of the Society we have arranged to have practically a continuous three-day session of the State Committee for Medical Preparedness. The Committee is holding its sessions in one of the alcoves on the first floor of

this hotel. We are prepared to take the applications and make the examinations for those who desire to enter the Medical Officers' Reserve Corps.

There will also be a Conjoint meeting this afternoon at 5 o'clock of the State Committee on Medical Preparedness and the State Committee on Red Cross work. The personnel of these Committees is almost identical. We will be pleased to have any one interested, either in Medical Preparedness or Red Cross work, to meet with us and give us the benefit of their wisdom and experience.

I would be less than human if I failed to appreciate the compliment you pay me as chairman of the Preparedness Committee to have these fragmentary remarks printed and widely distributed, and with your permission I will take them home and have them prepared in better shape and place them in the hands of the Publication Committee.

PHYSICIANS COMMISSIONED AND RECOMMENDED FOR COMMISSION IN THE MEDICAL RESERVE CORPS.

[This list is, unfortunately, incomplete. J. W. L.]

Allen, B. G. ..... Henderson
Ashby, E. C. ..... Greensboro
Abernethy, C. O. ..... Raleigh
Arnold, L. J. ..... Lillington
Anderson, J. N. ..... Albemarle
Adams, J. L. ..... Asheville

Banner, C. W. ..... Greensboro
Barefoot, J. J. ..... Graham
Brackett, W. E. ..... Caroleen
Benbow, J. T. ..... East Bend
Boyles, J. H. ..... Greensboro
Beall, L. G. ..... Asheville
Bryson, E. J. ..... Fontana
Blalock, J. A. ..... Jackson
Beckwith, R. P. ..... Rosemary
Byerly, A. B. ..... Cooleemee
Bagley, R. A. ..... Moyock
Best, H. B. ..... Wilson
Brooks, B. U. ..... Durham
Buie, R. M. ..... Williamston
Bennett, P. R. ..... Bryson City
Bailey, C. L. ..... Sutherlin, Va.
Burrus, J. T. ..... High Point
Belden, L. K. ..... Wilmington
Biggs, M. H. ..... Rutherfordton
Buchanan, L. T., Jr ..... Oxford

Crews, N. H. ..... Henderson
Clark, D. D. ..... Clarkton
Cutchin, J. H. ..... Whitakers

Croom, G. H. ..... Wilmington
Codington, H. A. ..... Wilmington
Cliff, B. F. ..... Flat Rock
Caldwell, J. H. ..... Charlotte
Crowell, A. J. ..... Charlotte
Clinton, R. S. ..... Rocky Mount
Carstarphen, W. T. ..... Wake Forest
Candler, C. Z. ..... Sylva
Crowell, W. H. ..... Whiteville
Choate, G. W. ..... Rockwell
Covington, J. M., Jr ..... Wadesboro
Chester, P. J. ..... Mooresville
Crumpler, Paul ..... Clinton
Coleman, G. S. ..... Kenly
Chaney, T. M. ..... Winston-Salem
Colby, C. D. W. ..... Asheville

Dixon, G. G. ..... Ayden
Daligny, C. ..... Troy
Dees, R. O. ..... Greensboro
Dees, R. E. ..... Greensboro
Dickinson, E. T. ..... Wilson
Dimmette, J. A. ..... Gastonia
Dosher, J. A. ..... Southport

Eason, O. ..... Princeton
Earnhardt, J. M. ..... Mount Pleasant
Ellen, C. J. ..... Greenville

Farrar, M. R. ..... Kings Mountain
Fetner, L. M. ..... Charlotte
Floyd, L. D. ..... Cerro Gordo
Fletcher, M. H. ..... Asheville
Freeman, M. R. ..... Bailey

Greene, J. C. ..... Greenville
Greene, W. W. ..... Tarboro
Gold, T. B. ..... Lawndale
Grady, L. V. ..... Wilson
Garrison, D. A. ..... Gastonia
Garrenton, C. ..... Bethel
Gibbon, R. L. ..... Charlotte
Gore, T. L. ..... Wilmington
Griffith, L. M. ..... Asheville

Hooper, J. W. ..... Wilmington
Hardin, E. R. ..... Clinton
Hill, J. N. ..... Murphy
Hayes, R. B. ..... Hillsboro
Hooks, Thel ..... Smithfield

Harrison, J. S. ..... Elm City
Houser, M. C. ..... Charlotte
Herbert, W. P. ..... Asheville
Hovis, L. W. ..... Charlotte
Hays, B. K. ..... Oxford
Hassell, C. S. ..... Lewiston
Hanes, F. M. ..... Winston-Salem
Harbeck, E. V. ..... Weaverville
Henderson, T. B. ..... Henderson

James, F. P. ..... Laurinburg
Jenkins, W. G. ..... Raleigh

Kirkpatrick, L. R. ..... Bennettsville, S. C.
King, E. S. ..... Statesville
Knight, W. P. ..... Greensboro
Knoefel, A. E. ..... Black Mountain

Lawrence, C. S. ..... Winston-Salem
Lassiter, E. W. ..... Rich Square
Laughinghouse, C. O'H. ..... Greenville
Long, H. F. ..... Statesville
LeGwin, J. B. ..... Wilmington
Long, G. ..... Newton
Lockett, E. A. ..... Winston-Salem
Long, J. W. ..... Greensboro

McCall, A. C. ..... Rocky Mount
McConnell, J. W. ..... Davidson
McGaugan, J. V. ..... Fayetteville
McIntosh, L. C. ..... Henderson
McLaughlin, C. S. ..... Charlotte
McLean, C. E. ..... Kings Mountain
McLelland, W. D. ..... Mooresville
McManus, W. L. ..... Bonlee
McMillan, R. D. ..... Red Springs
McMullan, T. S. ..... Hertford
Magruder, L. F. ..... Albemarle
Mann, T. A. ..... Fairfield
Mayerberg, I. W. ..... Selma
Meadows, W. J. ..... Greensboro
Miller, J. F. ..... Asheboro
Moore, H. T. ..... Wilmington
Moore, K. C. ..... Wilson
Moore, R. A. ..... Charlotte
Mordecai, A. ..... Raleigh
Morrill, D. S. ..... Farmville
Morris, G. B. ..... Mount Olive
Moseley, H. P. ..... Farmville
Munroe, J. P. ..... Charlotte

Noble, R. P. ..... Raleigh
Nesbit, W. O. ..... Charlotte

Oliver, A. S. ..... Greensboro
Ogburn, H. H. ..... Greensboro
Orr, W. L. ..... Matthews

Pate, F. J. ..... Greensboro
Pace, K. B. ..... Greenville
Person, H. M. ..... Goldsboro
Patchin, D. F. ..... Roanoke Rapids
Pepper, J. K. ..... Winston-Salem
Pegram, R. W. S. ..... Canton
Pressley, J. M. ..... Belmont
Pressley, G. W. ..... Charlotte
Palmer, M. C. ..... Tryon

Ross, J. K. ..... Charlotte
Robinson, H. ..... Reidsville
Roberson, F. ..... Durham
Robertson, J. F., Jr. ..... Wilmington
Reeves, J. L. ..... Whittier
Rozzell, J. H. ..... Salisbury
Ray, H. ..... Plymouth
Roff, F. R. ..... Duke

Slocum, R. B. ..... Wilmington
Swindell, F. D. ..... Kittrell
Shugart, F. C. ..... Elkin
Scruggs, W. H. ..... Asheville
Strickland, E. L. ..... Wilson
Scruggs, W. R. ..... Rutherfordton
Shafer, I. E. ..... Salisbury
Speed, J. A. ..... Durham
Summey, T. J. ..... Brevard
Starr, H. F. ..... Greensboro
Schoonover, R. A. ..... Greensboro
Saliba, M. ..... Wilson
Speight, J. P. ..... Rocky Mount
Speas, W. P. ..... Cooleemee
Speas, D. C. ..... Bethania
Swindell, C. L. ..... Wilson
Salmons, L. R. ..... Winston-Salem
Strosnider, C. F. ..... Wilmington
Stockard, J. K. ..... Aurora
Stokes, J. E. ..... Salisbury

Thomas, J. G. ..... Greensboro
Troy, T. S. ..... Lake Charles, La.
Thaxton, B. A. ..... Greensboro

Thames, J. ..... Winston-Salem
Turlington, H. C. ..... Cooper
Thomas, W. N. ..... Oxford
Thompson, S. W. ..... Sanatorium
Thompson, C. D. ..... Lincolnton
Taylor, I. M. ..... Morganton
Templeton, J. M. ..... Cary

Uhla, R. T. ..... Franklinton

Van Poole, C. M. ..... Salisbury

Willcox, I. W. ..... Laurel Hill
Watts, R. E. ..... Kannapolis
Whitaker, R. B. ..... Whiteville
Whisnant, A. M. ..... Charlotte
Wilson, Hugh ..... Durham
Wiggins, J. C. ..... Winston-Salem
Williams, A. F. ..... Wilson
Woodard, C. B. ..... Kenly
Wrenn, F. R. ..... Siler City
Wilkes, Grover ..... Sylva
Winstead, J. A. ..... Nashville
Witherspoon, B. J. ..... Charlotte
Way, J. H. ..... Waynesville
West, L. N. ..... Raleigh

Youmans, W. F. ..... Electric
York, H. B. ..... Williamston

Dr. J. Howell Way, Waynesville: Gentlemen of the Conjoint Session, we appreciate very much your presence and your active interest in the vital matters that have engaged our attention. Dr. Long advises me that this concludes his work for preparedness in connection with the Conjoint Session.

There is one other matter that I would like to call your attention to at the present moment. Dr. Richard H. Lewis, of Raleigh, the mere mention of whose name causes the bosom of the members of this Society to swell with love and affection when they realize his splendid character, his lovable personality, his lifelong work for public health and every interest that concerns us medical men of North Carolina—Dr. Lewis is sick, he has been for a few weeks now confined to his bed, and consequently unable to be present at what is to him one of the most delightful meetings he ever attends, the Conjoint Session of the State Board of Health and the State Medical Society. The Chair would appreciate

the adoption of a motion authorizing the Secretary to send him a greeting of love and affection from the Conjoint Session and the Medical Society.

As your generous applause has seconded this motion, I ask all favoring its adoption to please arise. The motion is unanimously adopted. The Secretary will carry out the order of the Society.

Dr. E. C. Register, for thirty years an active and ever an earnest working member of this Society, its honored ex-President, and just appointed by Governor Bickett a member of our State Board of Health, lies today on a bed of illness where he has been for a few weeks past in New York City. A telegram this morning from Dr. William S. Bainbridge brings the message that he will be better and be with us again. If it is the pleasure of the Society, kindly authorize the Secretary to send him a similar greeting of affection and fraternity as we have just expressed.

Motion is seconded by several and unanimously adopted.

It is moved by Dr. Laughinghouse that the Secretary be instructed to acknowledge the telegram of Dr. L. J. Picot and express regrets that he could not come, and that he be directed to wire Dr. J. M. Parrott, and in that telegram express sympathy for Dr. Albert Parrott, who is at this moment very sick.

Dr. Way: I would like to ask the members of the State Board of Health to gather around the desk for the transaction of business for a moment after the adjournment of the Conjoint Session. I thank you gentlemen for your presence and your inspiring attention.

The Conjoint Session is declared adjourned.

Dr. Way: The North Carolina State Board of Health is now in order. I desire to announce to you that with the expiration of the official term of your elected President for the past six years, for which he was appointed a member of the Board by Governor Kitchin in 1911, expires with this session, and you are requested now to perform the responsible duty of electing your President for the ensuing term. Nominations are now in order for the President of the State Board of Health.

Dr. C. O'H. Laughinghouse: For reasons known to myself, I move that we continue the present incumbent in the very responsible position of President, because if we are looking for efficiency we cannot improve upon the efficiency we now have, and without further remarks I trust that the man who seconds my nomination will move that the nomination be closed and we do this by acclamation.

Dr. Cyrus Thompson, Jacksonville: I second with pleasure the nomination made by my friend and racial kinsman. I move that nominations be closed and the Secretary be directed to cast the ballot for President for J. Howell Way.

Motion carried.

Dr. W. S. Rankin: The Secretary takes great pleasure in casting a unanimous vote for the reëlection of President Way.

Dr. J. Howell Way: There is only one thing I can say, and that is, from the very bottom of my heart it is the truth that I appreciate this manifestation of your continued confidence and, permit me to add, affection. My best endeavors will continue to be given to the work of the President of the State Board of Health. I realize that the real work of our Board of Health is done by the most valued, the most efficient Secretary that I believe any State Board of Health has in this Union. I want to tell you gentlemen that recently at a meeting in New Orleans of health officials of the Southern States in the Union I stayed there for two days and made comparison between our man Rankin and other men from the various and other states of the South, and I wish to say that when W. S. Rankin open his mouth in that conference of the official staff—President and Secretary, laboratory workers in the sixteen states in the southeast—everybody paid attention. I do not know that I ever felt prouder of North Carolina than I did at that meeting. Dr. Rankin was the leading figure of the meeting.

Now, I started to thank you and I still thank you, but I wanted to tell you that.

Dr. W. S. Rankin: It is very evident that the members of the Board and the President feel very happy. I feel that you know President Way as well as I do, and you know while it is not customary for him to exaggerate, that on certain occasions he does take a pretty wide margin. We did enjoy ourselves very much in New Orleans and I do not know how much his environments had to do with the very pleasant impression he brought away. I very deeply appreciate his kind expressions.

Of course, you know that the work of the Board now, and has for a long time rested upon the shoulders of five or six executive officers, each man with his own individual work, and to all of whom credit is due for what progress we have made. I was elected Secretary of the State Board of Health eight years ago at our last meeting in this city. At that time the executive office consisted of the Secretary and a clerk. I am not including the laboratory. Today the executive force of the State Board of Health consists of Dr. Shore, the oldest member, al-

though you cannot tell it by looking at him, Mr. Warren H. Booker, Dr. J. R. Gordon, Dr. L. B. McBrayer, Dr. G. M. Cooper, Dr. Crouch, and Dr. Washburn, who will have charge of one of the most important things ever started in the State, and myself, eight members, and the eight members are simply pieces of a machine which would be broken and unfinished if any one were removed. The work of the Board is a big thing and it has come about that the Secretary has very little of the whole of it. He simply coördinates the work and takes care of the loose ends.

DR. REGISTER'S LETTER.

CHARLOTTE, N. C., April 14, 1917.

DR. W. S. RANKIN,

Secretary State Board of Health.

DEAR DR. RANKIN:—I had hoped until the last moment that the pleasure would be mine of attending the meeting of the State Board of Health on April 16th, and shaking hands with many of my old friends on that occasion; but I am sorry to tell you that I have been quite sick for some weeks, and while I am gaining ground now, it is slowly, and it may be possible that I will not be able to get to the meeting.

I wish, however, to go on record as wanting—yes, wanting very much—to see Dr. J. Howell Way continue as President of the State Board of Health, and hope you will write me that, before you adjourn your meeting, Dr. Way has been selected as our President of the State Board.

Anticipating the pleasure of being associated with you again, and with assurances of esteem and confidence,

Very truly yours, E. C. REGISTER.

P. S.—I hope this, my proxy, may reach you in time to cast my vote for Dr. Way, our efficient ex-President, as I feel reasonably sure today that I will not be present to vote in person, and thus mail my proxy to you for Dr. Way as forthcoming President.

TELEGRAM FROM DR. FERRELL.

NEW YORK, N. Y., April 18, 1917.

DR. W. S. RANKIN,

Secretary N. C. State Board of Health.

International Health Board authorized acceptance your proposition in principle, an understanding regarding budget, Washburn, and other details. Will necessitate conference. I can come to North Carolina by close of April. In meantime you and Washburn may develop details for carrying out arrangement. My compliments to State Board and Society.

JOHN A. FERRELL.

DR. W. S. RANKIN: What he refers to there is a proposition from the State Board of Health in regard to a partnership between the International Health Board and the State Board of Health, the State of North Carolina putting up $15,000 and the International Health Board

putting up $15,000, so that matter is practically settled. The International Health Board has also agreed to lend us Dr. Washburn, whom I regard as one of the most efficient men for this work in the State. Everything is now settled except mere detail, and it is one of the most important pieces of work we have undertaken.

The State Board of Health must meet in June in Raleigh for at least a day's session. It will probably take from six to nine hours to get through with the work. We must adopt rules governing quarantine throughout the State of North Carolina. I have a man preparing such rules and regulations now. He has gone to Indiana and will go to Minnesota, and will spend the next six or eight months preparing such rules. I have nothing urgent to bring before you now, nothing that cannot be postponed for a month, so I suggest that if you desire to participate in the functions of the Society some one might move for an adjourned meeting, the date to be fixed by the President.

Dr. Cyrus Thompson: I move that the Board do now adjourn till a date in June to be fixed and announced by the Chairman.

The motion is seconded. It is so ordered.

MINUTES MEETING OF THE NORTH CAROLINA STATE BOARD OF HEALTH.

Raleigh, N. C., June 28-29, 1917.

The meeting was called to order by the President, Dr. J. Howell Way. Besides the President, the other members present were Drs. Anderson, Harris, Laughinghouse, Lewis, Register, Thompson, and Wood. The following whole-time county health officers and county physicians who had been invited to sit with the Board were present: Dr. K. E. Miller of the United States Public Health Service, now engaged in whole-time county health work in Edgecombe County, Dr. Arch Cheatham, health officer of Durham, Dr. E. F. Long, health officer of Davidson County, and Dr. Geo. Shipp, county physician of Catawba County.

On motion of Dr. Harris the visitors were extended the privileges of the floor.

The minutes of the last meeting were read by the Secretary. The Secretary was instructed to incorporate in the minutes some reference to the preparedness discussion in the Conjoint Session of the State Board of Health and State Medical Society in Asheville in April. With this correction, the minutes of the preceding meeting were approved. (See correction insert, page 81.)

President Way asked the Secretary to state briefly the purpose of the meeting. The Secretary stated that there were two important matters to come before the Board at this time: (1) to make a contract for the purchase of a State supply of a suitable prophylactic for the treatment of ophthalmia neonatorum, as required in chapter 257, Public Laws of 1917; and (2) to adopt minimum State-wide rules and regulations for the control of infectious and contagious diseases as required in chapter 263, Public Laws of 1917.

The Secretary suggested that for the convenience of Mr. Tiffany, representative of the Lederle Laboratories, who was present, the matter of deciding upon and arranging for the purchase of the prophylactic be considered first. After a general statement by the Secretary regarding the numerous prophylactics in use by various State boards of health and after the examination of a number of different packages and pertinent correspondence, Mr. Tiffany was asked to explain his product, its advantages, and prices. On motion, it was decided to give the contract to the Lederle Laboratories for one year's supply of a one per cent solution of silver nitrate in wax ampules at a price of two cents per ampule inclusive of package, the number of ampules per package being left to the discretion of the Secretary.

President Way then asked the Secretary to explain the law for the control of contagious and infectious diseases. The Secretary read and explained the law section by section, and then presented and explained a set of tentative minimum rules and regulations provided for in the law for the consideration and action of the Board. The rules were first read as a whole and then re-read rule by rule, each rule being considered separately. The rules and regulations, after full consideration, discussion, and amendment, occupying three sittings of the Board and consuming altogether about ten hours, were finally adopted as they appear on pages 415 to 428 inclusive.

[Continued]

All members present except Colonel Ludlow.

President Way brought up the question as to the advisability of the Laboratory's undertaking to do Wassermann reaction for the medical profession of the State. Dr. Shore of the Laboratory was present and discussed this matter. Dr. Shore favored undertaking the work of making Wassermann tests. The Board were of the unanimous opinion that such work should be begun by the Laboratory as early as possible. The only question on which there was some discussion among the members of the Board was the question of charging a small fee for the Wassermann, the idea being that the small fee would be of advantage not as a source of revenue so much as it would in preventing the abuse

by members of the medical profession of free Wassermann. It was finally moved and carried that the Laboratory should undertake to make free Wassermann for the medical profession as soon as the Laboratory could conveniently equip itself to do so.

The matter of the Laboratory's furnishing material and directions to the physicians of the State for making the von Shick test was then considered. It was finally moved and carried that the Laboratory should undertake this work as soon as it could conveniently do so.

It was moved that Drs. Wood and Laughinghouse stop at Goldsboro on their return home from the meeting of the Board and investigate the pellagra situation in the State Hospital for the Insane. This motion was carried.

The President of the Board inquired carefully about the newspaper reports of the death of a child in Glenwood that had been bitten by a rabid animal and afterwards treated with the Pasteur treatment by the State Laboratory of Hygiene. Dr. Shore, who was present, gave all the details of the case, stating as a conclusion that it was exceedingly doubtful whether the child had died, as certified in the death certificate, from hydrophobia. It seemed peculiarly unfortunate that Dr. Aldert S. Root, a man of unimpeachable character and professional ability, had made the diagnosis and certified the cause of death as hydrophobia. It was moved that Drs. Lewis, Shore, and Rankin should investigate the case, especially with the view of having the death certificate corrected if they (the committee) dissented from Dr. Root's opinion.

Dr. Laughinghouse repeated the warning he had voiced in preceding meetings of the Board with reference to educating the public and the medical profession as to the danger of using biological products that had been stored too long or under improper temperature.

Dr. Wood raised the question of the Board's entering into a more active participation in food regulation. Dr. Rankin pointed out (1) that food control as practiced in most places is about 95 per cent commercial and 5 per cent hygienic, (2) that in many States the State food department is under the board of agriculture, as it is in this State, and hygienic aspects of the food problem are being more fully appreciated by health officers than heretofore. It was moved and carried that Drs. Wood and Rankin be appointed a committee on food conservation and use.

The President of the Board then expressed his appreciation for the full attendance and his regret of the absence of Colonel Ludlow.

On motion the Board adjourned.

W. S. Rankin, *Secretary.*

LAWS

CHAPTER 263, PUBLIC LAWS 1917.

An Act to Prevent and Control the Occurrence of Certain Infectious Diseases in North Carolina.

The General Assembly of North Carolina do enact:

Section 1. On the second Tuesday of July, one thousand nine hundred and seventeen, all county quarantine officers and all county health officers to whom the duties of county quarantine officer have been assigned, as provided for in chapter sixty-two, laws of one thousand nine hundred and eleven, as amended by chapter one hundred and eighty-one, laws of one thousand nine hundred and thirteen, shall appear before the clerk of the Superior Court in their respective counties and make official oath or affirmation to faithfully enforce this act and its provisions: Provided, that in those counties where a county board of health fails or neglects to elect a county quarantine officer on or before the second Tuesday of July, one thousand nine hundred and seventeen, the secretary of the North Carolina State Board of Health shall appoint a quarantine officer for the said county: Provided further, that on refusal or neglect of any quarantine officer, or county health officer acting as quarantine officer, to make within a period of ten days of the time named in this section of this act, the aforesaid official oath or affirmation to enforce this act and its provisions, the secretary of the North Carolina State Board of Health is hereby empowered to remove said quarantine or county health officer and to appoint a quarantine officer to enforce this act and its provisions, and on the said appointee all the powers, privileges, and compensation provided for herein for the county quarantine officer are hereby conferred.

Sec. 2. The official term of service of a county quarantine officer, including those now serving, except in those counties where there is a county health officer, shall expire on the first Monday in January of the fourth year from the year of their appointment or election. In those counties having a county health officer who makes official oath or affirmation to enforce this act and its provisions, the office of county quarantine officer shall be coterminous with the office of the said county health officer. The county board of health shall elect a successor to the county quarantine officer, or the county health officer acting as county quarantine officer, on or before the expiration of the term of service of said officer as herein defined: Provided, that in case of disqualification for continuance in office of the county quarantine officer, or the county health officer acting as county quarantine officer, by resignation, death, or other disqualification, the county board of health shall, within five days thereafter, elect a county health officer or county quarantine officer to fill out the unexpired term of service: Provided further, that in case of the failure of the county board of health to so elect a successor to complete an unexpired term of service of a quarantine officer, or a county health officer acting as county quarantine officer, who has become disqualified for continuance in office, the secretary of the North Carolina State Board of Health shall immediately appoint a county quarantine officer who shall make official oath or affirmation to enforce this act and its provisions.

Sec. 3. The county board of health in electing a county quarantine officer shall promptly notify, in writing, the secretary of the North Carolina State

Board of Health of such action, and failure to so notify the said secretary shall nullify the election of the county quarantine officer. The county quarantine officer, or the county health officer acting as quarantine officer, shall promptly notify the secretary of the North Carolina State Board of Health, in writing, inclosing certified copy of the oath or affirmation of office taken, of his having taken the oath or affirmation of office, and failure to do so shall be construed as failure to have taken the official oath or affirmation of office.

Sec. 4. Any county quarantine officer, or county health officer acting as county quarantine officer, who fails or refuses to enforce this act or its provisions in his county shall be guilty of a misdemeanor, and on conviction fined not exceeding fifty dollars ($50), and may, if the secretary of the North Carolina State Board of Health so decide, be disqualified for continuance in office.

Sec. 5. This act shall not apply to incorporated towns and cities of this State having a population, according to the last decennial census, of ten thousand or over; and this act shall not apply to those counties the sanitary administration of which is directed by a joint board of health presiding over both the county and a town or city having a population, according to the last Federal decennial census, of ten thousand or more: Provided, however, that the system of quarantine in force in those cities and counties named in this section shall be approved by the North Carolina State Board of Health, and reports of the occurrence of contagious diseases in such cities and counties shall be made to the North Carolina State Board of Health as from all other cities and counties in North Carolina.

Sec. 6. For his services, the county quarantine officer shall be paid monthly, on certification from the secretary of the North Carolina State Board of Health that the said officer has performed the duties of his office in a satisfactory manner, out of the county funds by the county treasurer, or in those counties that have no county treasurer by that official who performs the usual duties of the treasurer's office. Monthly payments shall be made on a population basis, according to the last decennial Federal census, as follows:

	Per month
Counties with a population less than 10,000	$ 15.00
Counties with a population of from 10,000 to 15,000	17.50
Counties with a population of from 15,000 to 25,000	25.00
Counties with a population of from 25,000 to 40,000	35.00
Counties with a population of from 40,000 to 50,000	45.00
Counties with a population over 50,000	50.00

In addition to the monthly salary paid the quarantine officer, the county treasurer, or the person acting as county treasurer, shall pay to the quarantine officer all financial statements with receipted bills attached for sums paid out for postage, registration of letters, and disinfectants, the total sum not to exceed ten dollars ($10) in any month nor one hundred dollars ($100) in any one year: Provided, however, that the secretary of the North Carolina State Board of Health shall supply the county quarantine officer, and without cost to the county, with all forms, placards, and literature necessary for carrying out the provisions of this act: Provided further, that county authorities may revise their understandings with those county physicians who are acting as both physicians to county charges and as quarantine officer and whose terms of office as quarantine officer shall expire in January, one thou-

sand nine hundred and twenty-one, unless discontinued by death, resignation, or other disqualification, on a basis of compensation adequate to the new duties herein required; but in no case shall the compensation allowed for the services required by this act of quarantine officers be less than that herein named.

Sec. 7. It shall be the duty of every physician to notify the county quarantine officer of the name, address, including the name of the school district, of any person living or residing, permanently or temporarily, in the county about whom such physician is consulted professionally and whom he has reason to suspect of being afflicted with whooping cough, measles, diphtheria, scarlet fever, smallpox, infantile paralysis, typhoid fever, typhus fever, Asiatic cholera, bubonic plague, yellow fever, or other disease declared by the North Carolina State Board of Health to be infectious and contagious, within twenty-four hours after obtaining reasonable evidence for believing that such person is suffering from one of the aforesaid diseases: Provided, however, that if the afflicted person is a minor, the physician consulted professionally about such person shall notify the county quarantine officer of the name and address of the parent or guardian of such minor in addition to the name, address, and school district of the person about whom he is professionally consulted and whom he believes to be afflicted with one of the aforesaid diseases.

Sec. 8. It shall be the duty of every parent, guardian, or householder, in the order named, to notify the county quarantine officer of the name, address, including the name of the school district, of any person in their family or household about whom no physician has been consulted but whom they have reason to suspect of being afflicted with whooping cough, measles, diphtheria, scarlet fever, smallpox, infantile paralysis, typhoid fever, Asiatic cholera, typhus fever, bubonic plague, yellow fever, or other disease declared by the North Carolina State Board of Health to be infectious or contagious.

Sec. 9. It shall be the duty of the county quarantine officer to report all cases of whooping cough, measles, diphtheria, scarlet fever, smallpox, infantile paralysis, typhoid fever, Asiatic cholera, typhus fever, bubonic plague, yellow fever, or other disease declared by the North Carolina State Board of Health to be infectious or contagious, reported to him by physicians and parents, guardians, or householders, within twenty-four hours of the receipt of such report, to the secretary of the North Carolina State Board of Health at Raleigh, and to make this report to the said secretary on forms supplied him by the said secretary and in accordance with the rules and regulations adopted by the North Carolina State Board of Health.

Sec. 10. The North Carolina State Board of Health shall meet some time preceding the date named herein for this act to take effect, and shall adopt what in their judgment seems to be the necessary rules and regulations governing the management, supervision, or control of the diseases coming within the meaning of this act, and shall cause the said rules and regulations to be published in the North Carolina State Board of Health Bulletin and to be supplied in suitable quantities to all concerned with the execution of this act, and the North Carolina State Board of Health shall revise the aforesaid rules and regulations from time to time to adjust their requirements to new discoveries and improved methods for dealing with the sources and modes of infection of the diseases mentioned in this act: Provided, however, that the rules and regulations adopted by the North Carolina State Board of

Health, as provided for in this section, shall be regarded as the minimum requirements, and that the authorities of any county, town, or city may adopt such additional rules and regulations for the control of the diseases mentioned in sections seven, eight, and nine of this act, and pay such additional fees and salaries as in the judgment of the authorities of such counties, towns, and cities seem necessary.

Sec. 11. Any person willfully violating any of the provisions of this act and any person violating any of the rules and regulations adopted by the North Carolina State Board of Health for the control of the diseases mentioned in this act, and as provided for in the preceding section, shall be guilty of a misdemeanor and fined not exceeding fifty dollars ($50), or imprisoned not less nor more than thirty days, at the discretion of the court. In case the offender be stricken with the disease for which he is quarantinable, he shall be subject to the penalty on recovery, unless in the opinion of the secretary of the North Carolina State Board of Health the penalty should be omitted.

Sec. 12. For the purpose of seeing that this act and the rules and regulations adopted by the North Carolina State Board of Health, provided for in this act, are faithfully executed, a bureau of epidemiology and the office of State Epidemiologist is hereby created, and an appropriation of four thousand dollars ($4,000) for the fiscal year of one thousand nine hundred and seventeen, and thereafter an annual appropriation of six thousand dollars ($6,000) is hereby appropriated. The aforesaid bureau and the State Epidemiologist shall be under the control and supervision of the North Carolina State Board of Health.

Sec. 13. All laws and clauses of laws in conflict with this act are hereby repealed.

Sec. 14. This act shall be in force from and after June first, one thousand nine hundred and seventeen.

Ratified this the 7th day of March, A. D. 1917.

DISEASES MADE REPORTABLE BY RESOLUTIONS OF THE NORTH CAROLINA STATE BOARD OF HEALTH.

CEREBRO-SPINAL MENINGITIS.

The North Carolina State Board of Health, under chapter 263, sections 7, 8, and 9, Public Laws of 1917, hereby declares cerebro-spinal meningitis [epidemic cerebro-spinal meningitis] to be infectious and contagious, and therefore reportable.

OPHTHALMIA NEONATORUM.

The North Carolina State Board of Health, under chapter 263, sections 7, 8, and 9, Public Laws of 1917, hereby declares ophthalmia neonatorum to be infectious and contagious, and therefore reportable.

RULES AND REGULATIONS

Governing the County Quarantine Officer or County Health Officer Acting as County Quarantine Officer.

Adopted by the North Carolina State Board of Health Under the Requirements of Section 10, Chapter 263, Public Laws of North Carolina for 1917.

Quarantine Officer's General Rules.

Rule 1. The county quarantine officer, or the county health officer acting as county quarantine officer, shall furnish the editors of the county papers, monthly, on forms prepared by the North Carolina State Board of Health, the names and addresses of all persons reported during the preceding month as suffering from those infectious and contagious diseases which are mentioned in section 7, chapter 263, Public Laws of 1917.

Rule 2. The county quarantine officer, or the county health officer acting as county quarantine officer, shall supply the principals or teachers of all public or private schools at the beginning of their schools with blank forms prepared by the North Carolina State Board of Health on which, in accordance with directions furnished therewith, the teacher shall report to the quarantine officer a disease census of the school within two weeks of receipt of said forms.

Rule 3. The county quarantine officer, or the county health officer acting as county quarantine officer, when he has reason to believe that a person is afflicted with one of the diseases mentioned in section 7, chapter 263, Public Laws of 1917, and has not been reported to him as suffering from such disease by the attending physician or by the householder, is hereby empowered to visit such person to determine the nature of the disease with which such person is afflicted and to institute those measures necessary to prevent the spread of any possible infectious agent.

Quarantine Officer's Special Rules.

Whooping Cough, Measles, Diphtheria, Scarlet Fever, and Poliomyelitis [Infantile Paralysis], Cerebro-Spinal Meningitis [Epidemic Meningitis].

Rule 1. The county quarantine officer, within twelve hours after receiving notice of the existence of a case of whooping cough, measles, diphtheria, scarlet fever, cerebro-spinal meningitis [epidemic meningitis], or poliomyelitis [infantile paralysis] in any village or town having a population of 1,000 or more persons within the county in which he has official jurisdiction, shall visit in person, or have visited in the person of the sanitary inspector or police or city physician of such village or town, the household in which the disease is reported to be, and shall (1) instruct, or have instructed, the householder with reference to the State law and the rules and regulations adopted by the North Carolina State Board of Health under the requirements of the State law as to the duties of the householder under the circumstances; (2) have the house placarded in accordance with instructions prepared by the North Carolina State Board of Health for the householder; (3) leave with the householder a pamphlet prepared by the North Carolina State Board of Health setting forth the dangers of the disease and the best means for preventing the spread of the disease.

Rule 2. The county quarantine officer, within twelve hours after receiving notice of the existence of a case of whooping cough, measles, diphtheria, scarlet fever, cerebro-spinal meningitis [epidemic meningitis], or poliomyelitis [infantile paralysis] in any rural section of the county in which he has official jurisdiction, or in any vlilage or town in such county with a population of less than 1,000 persons, shall go in person or shall dispatch by registered mail, with return receipt attached, or, where special arrangements have been made with the village or town authorities, may send by sanitary inspector or police or city physician to the householder in whose household the disease is reported to be, an official notice calling the said householder's attention to (1) the State law and the rules and regulations adopted under the requirements of the State law by the North Carolina State Board of Health as to the duties of the said householder under the circumstances; (2) an enclosed placard which shall be posted as directed in the rules for the householder; and (3) a pamphlet prepared by the North Carolina State Board of Health setting forth the dangers of the disease and the best known methods for preventing the spread of the disease.

Rule 3. The county quarantine officer, within twelve hours after receiving notice of the existence of a case of whooping cough, measles, diphtheria, scarlet fever, cerebro-spinal meningitis [epidemic meningitis], or poliomyelitis [infantile paralysis], shall mail to the teacher or principal in charge of the school or schools that have been attended recently by the children of the household in which the disease is reported to be, an official notice, and shall furnish the aforesaid teacher or principal (1) the rules and regulations adopted by the North Carolina State Board of Health defining the duties of the principals or teachers of the public schools under the circumstances; (2) a sufficient quantity of suitable literature on the disease which has been reported, for distribution through the children attending the school to all the families represented in the school.

SMALLPOX.

Rule 1. The county quarantine officer, within twelve hours after receipt of notice of the existence of a case of smallpox in any incorporated town or city within the county in which he has jurisdiction, and other than those towns or cities otherwise provided for in section 5, chapter 263, Public Laws of 1917, shall officially notify the mayor or business manager of such town or city, on forms prepared by the State Board of Health, of the existence of the disease, of the best measures for controlling it, and of the official responsibility of the town or city official under the circumstances.

Rule 2. Within twelve hours after receipt of notice of the existence of a case of smallpox, the county quarantine officer shall dispatch by registered mail, with return receipt attached, to the householder in whose house the disease exists the following: (1) the State law and rules and regulations adopted under the provisions of the State law as to the duty of said householder under the circumstances; (2) an inclosed placard which the householder shall post as directed in the rules, and (3) a pamphlet setting forth the danger, mode of conveyance, and mode of preventing smallpox.

Rule 3. The county quarantine officer, within twenty-four hours after receipt of notice of the existence of a case of smallpox in any rural section or in any unincorporated settlement, shall post or have posted public notice prepared by the North Carolina State Board of Health for advising the public

of the occurrence of the disease and of those means by which its dangers may be avoided. At least ten such notices for each locality in which the disease exists shall be posted in such places as to be easily observed by the public on or near by important public highways radiating from the location of the disease towards the different parts of the compass.

TYPHOID FEVER.

Rule 1. The county quarantine officer, within twelve hours after receiving notice of the existence of a case of typhoid fever within the county in which he has official jurisdiction, shall mail to the householder in whose house typhoid fever is reported to be, an official notice calling said householder's attention to the following: (1) the State law and the rules and regulations adopted under the requirement of the State law as to the duties of said householder under the circumstances; (2) an inclosed placard which the householder shall post as directed in the rules, and (3) a pamphlet setting forth the danger, mode of conveyance, and mode of preventing typhoid fever.

YELLOW FEVER, TYPHUS FEVER, BUBONIC PLAGUE, ASIATIC CHOLERA.

As these diseases have not been recognized in this State in recent years and in all probability will not occur in this State to an extent threatening the public health, the North Carolina State Board of Health feels that it is sufficient to have the cases of these diseases reported to the State Epidemiologist, who, on receipt of a report of any one of the said diseases, will personally take charge of the control or quarantine of the disease, calling into consultation an expert of the United States Public Health Service.

RULES GOVERNING THE MANAGEMENT OF WHOOPING COUGH.

Rule 1. Every parent, guardian, or householder, in the order named, in whose family or household whooping cough exists shall post securely a placard, with the name of the above disease printed thereon, in a conspicuous place on the front of his or her home (when living in an apartment house or hotel, on the main entrance to the apartment or rooms), immediately upon the receipt of such placard from the county quarantine officer, and no one shall remove the said placard until 42 days have passed since the beginning of the disease, or until the written permission of the quarantine officer has been obtained.

Rule 2. No parent, guardian, or householder, in the order named, in whose house whooping cough, or any spasmodic cough, exists shall permit any child or minor who has whooping cough, or any child or minor who has never had whooping cough, to attend any public or private school, Sunday school, church meeting, theater, party, picnic, or other public assemblage, or go near a public park, while the house is placarded.

Rule 3. No parent, guardian, or householder, in the order named, shall permit any child or minor who has never had whooping cough, but who has been exposed to whooping cough, to attend any public or private school, Sunday school, or other church meeting, theater, party, picnic, or other public assemblage, or go near a public park, within 14 days of the time of exposure.

Rule 4. No person who has whooping cough shall attend any public or private school, Sunday school, church meeting, theater, party, picnic, or other public assemblage, or go near a public park, within a period of 42 days from the beginning of the disease, unless sooner released by the written permission of the quarantine officer.

Rule 5. No wearing apparel, bed clothes, curtains, carpets, or other fabric with which a person suffering from whooping cough comes in contact shall be sent away from the family or household, while the house is placarded, without first being boiled or exposed to the rays of the sun for at least 8 hours.

Rule 6. Upon the termination of quarantine, and at the time of the removal of the placard, the room or rooms occupied by the sick shall be thoroughly cleansed in accordance with the directions prepared by the North Carolina State Board of Health.

RULES GOVERNING THE MANAGEMENT OF MEASLES.

Rule 1. Every parent, guardian, or householder, in the order named, in whose family or household measles exist shall post securely a placard, with the name of the above disease printed thereon, in a conspicuous place on the front of his or her home (when living in an apartment house or hotel, on the main entrance to the apartment or rooms), immediately upon the receipt of such placard from the county quarantine officer, and no one shall remove the said placard until twelve days have passed since the beginning of the disease, or until the written permission of the quarantine officer has been obtained.

Rule 2. No parent, guardian, or householder, in the order named, in whose house measles exists shall permit any child or minor who has measles to attend any public or private school, Sunday school, church meeting, theater, party, picnic, or other public assemblage, or go near a public park, while the house is placarded.

Rule 3. No parent, guardian, or householder, in the order named, shall permit any child or minor who has never had measles, but who has been exposed to measles, to attend any public or private school, Sunday school, or other church meeting, theater, party, picnic, or other public assemblage, or go near a public park, within 14 days of the time of exposure.

Rule 4. No person who has measles shall attend any public or private school, Sunday school, church meeting, theater, party, picnic, or other public assemblage, or go near a public park, within a period of 12 days from the beginning of the disease, unless sooner released by the written permission of the quarantine officer.

Rule 5. No wearing apparel, bed clothes, curtains, carpets, or other fabrics with which a person suffering from measles comes in contact shall be sent away from the family or household, while the house is placarded, without first being boiled or exposed to the rays of the sun for at least eight hours.

Rule 6. Upon the termination of quarantine, and at the time of the removal of the placard, the room or rooms occupied by the sick shall be thoroughly cleansed in accordance with the directions prepared by the North Carolina State Board of Health.

RULES GOVERNING THE MANAGEMENT OF DIPHTHERIA.

Rule 1. Every parent, guardian, or householder, in the order named, in whose family or household diphtheria exists shall post securely a placard, with the name of the above disease printed thereon, in a conspicuous place on the front of his or her home (when living in an apartment house or hotel, on the main entrance to the apartment or room), immediately upon the receipt of such placard from the county quarantine officer, and no one shall remove the said placard until three weeks have passed since the beginning of the disease, or until the written permission of the county quarantine officer has been obtained.

Rule 2. No parent, guardian, or householder, in the order named, in whose family or household diphtheria exists shall permit any child or minor to attend any public or private school, Sunday school, church meeting, theater, party, picnic, or other public assemblage, or go near a public park, while the house is placarded.

Rule 3. No parent, guardian, or householder, in the order named, shall permit any child known to have been exposed to a case of diphtheria, unless the said child has been shown by Shick test to be immune to diphtheria, or to have had an immunizing or protective dose of antitoxin, to attend any public or private school, Sunday school, church meeting, theater, party, picnic, or public assemblage, or to go near a public park, until five days have elapsed after the time of exposure.

Rule 4. No person who has diphtheria shall attend any public or private school, Sunday school, church meeting, theater, party, picnic, or other public assemblage, or go near a public park, within a period of twenty-eight days from the beginning of the disease, unless sooner released by the written permission of the quarantine officer. No person exposed to diphtheria shall attend any public or private school, Sunday School, church meeting, theater, party, picnic, or other public assemblage, within five days of the date of exposure to the disease, unless the said person has been shown to be immune to diphtheria by the Shick test, or to have been rendered immune to the disease through antitoxin. This rule does not apply to physicians rendering professional services to cases of diphtheria.

Rule 5. No parent, guardian, or householder, while diphtheria exists in the family or household, shall receive food supplies, including milk, from grocers and dairymen in containers that are to be returned while the disease exists in the family or household.

Rule 6. No wearing apparel, bed clothes, curtains, carpets, or other fabrics with which a person suffering from diphtheria comes in contact shall be sent away from the family or household, while the house is placarded, without first being boiled or exposed to the rays of the sun for at least eight hours.

Rule 7. At the expiration of the quarantine, three weeks from the beginning of the disease in a family or household, or when the written permission of the quarantine officer is obtained, the room or rooms occupied by the sick shall be thoroughly cleansed in accordance with directions prepared by the North Carolina State Board of Health.

RULES GOVERNING THE MANAGEMENT OF SCARLET FEVER.

Rule 1. Every parent, guardian, or householder, in the order named, in whose family or household scarlet fever exists shall post securely a placard, with the name of the above disease printed thereon, in a conspicuous place on the front of his or her home (when living in an apartment house or hotel, on the main entrance to the apartment or room), immediately upon the receipt of such placard from the county quarantine officer, and no one shall remove the said placard until 49 days have passed since the beginning of the disease, or until the written permission of the county quarantine officer has been obtained.

Rule 2. No parent, guardian, or householder, in the order named, in whose family or household scarlet fever exists shall permit any child or minor to attend any public or private school, Sunday school, church meeting, theater, party, picnic, or other public assemblage, or go near a public park, while the house is placarded.

Rule 3. No parent, guardian, or householder, in the order named, shall permit any child known to have been exposed to a case of scarlet fever to attend any public or private school, Sunday School, church meeting, theater, party, picnic, or other public assemblage, or go near a public park, until 7 days have elapsed after the time of exposure.

Rule 4. No person who has scarlet fever shall attend any public or private school, Sunday school, church meeting, theater, party, picnic, or other public assemblage, or go near a public park, within a period of 49 days from the beginning of the disease, unless sooner released by the written permission of the quarantine officer. No susceptible person exposed to scarlet fever shall attend any public or private school, Sunday school, church meeting, theater, party, picnic, or other public assemblage, or go near a public park, within 7 days of the date of exposure to the disease. This rule does not apply to physicians rendering professional services to cases of scarlet fever.

Rule 5. No parent, guardian, or householder, while scarlet fever exists in the family or household, shall receive food supplies, including milk, from grocers and dairymen in containers that are to be returned while the disease exists in the family or household.

Rule 6. At the expiration of the quarantine, 7 weeks from the time of the beginning of the disease in a family or household, or when the written permission of the quarantine officer is obtained, the room or rooms occupied by the sick shall be thoroughly cleansed in accordance with the directions of the North Carolina State Board of Health.

RULES GOVERNING THE MANAGEMENT OF SMALLPOX.

Rule: Every parent, guardian, or householder, in the order named, in whose family or household smallpox exists shall post securely a placard, with the name of the above disease printed thereon, in a conspicuous place on the front of his or her home (when living in an apartment house or hotel, on the front of the apartment or room), immediately upon the receipt of such placard from the county quarantine officer, and no one shall remove the said placard until eight weeks have passed since the beginning of the disease, or until the written permission of the quarantine officer has been obtained.

RULES GOVERNING THE MANAGEMENT OF POLIOMYELITIS.

[INFANTILE PARALYSIS.]

Rule 1. Every parent, guardian, or householder, in the order named, in whose family or household poliomyelitis [infantile paralysis] exists shall post securely a placard, with the name of the above disease printed thereon in a conspicuous place on the front of his or her home (when living in an apartment house or hotel, on the main entrance to the apartment or room), immediately upon the receipt of such placard from the county quarantine officer, and no one shall remove the said placard until 21 days have passed since the beginning of the disease, or until the written permission of the county quarantine officer has been obtained.

Rule 2 No parent, guardian, or householder, in the order named, in whose family or household poliomyelitis [infantile paralysis] exists shall permit any child or minor to attend any public or private school, Sunday school, church meeting, theater, party, picnic, or other public assemblage, or go near a public park, while the house is placarded.

Rule 3. No parent, guardian, or householder, in the order named, shall permit any child known to have been exposed to a case of poliomyelitis [infantile paralysis] to attend any public or private school, Sunday school. church meeting, theater, party, picnic, or public assemblage, or go near a public park until 10 days have elapsed after the time of exposure.

Rule 4. No person exposed to poliomyelitis [infantile paralysis] shall attend any public or private school, Sunday school, church meeting, theater, party, picnic, or other public assemblage, or go near a public park, within 10 days of the date of exposure to the disease. This rule does not apply to physicians rendering professional services to cases of poliomyelitis [infantile paralysis].

Rule 5. No parent, guardian, or householder while poliomyelitis [infantile paralysis] exists in the family or household shall receive food supplies, including milk, from grocers and dairymen in containers that are to be returned while the disease exists in the family or household.

Rule 6. At the expiration of the quarantine, 21 days since the beginning of the disease in a family or household, or when the written permission of the quarantine officer is obtained, the room or rooms occupied by the sick shall be thoroughly cleansed in accordance with the directions of the North Carolina State Board of Health.

RULES GOVERNING THE MANAGEMENT OF TYPHOID FEVER.

Rule 1. Every parent, guardian, or householder, in the order named, in whose family or household typhoid fever exists shall post securely a placard, with the name of the above disease printed thereon, in a conspicuous place on the front of his or her home (when living in an apartment house or hotel, on the front of the apartment or room), immediately upon the receipt of such placard from the county quarantine officer, and no one shall remove the said placard until six weeks have passed since the beginning of the disease, or until the written permission of the quarantine officer has been obtained.

Rule 2. No parent, guardian, or householder in whose house typhoid fever exists shall receive milk from a dairyman in containers that are to be returned to the dairyman while the disease exists in the family or household.

Rule 3. No parent, guardian, or householder in whose house typhoid fever exists shall give away or sell milk or butter to the public except after a personal visit by the quarantine officer, and then only in accordance with directions of the quarantine officer.

Rule 4. No parent, guardian, or householder in whose house typhoid fever exists shall send away from the house any wearing apparel, bed clothes, curtains, carpets, or other fabrics that have come in direct or indirect contact with the person suffering from typhoid fever until such fabrics have been either boiled or completely saturated with a solution of carbolic acid consisting of one tablespoonful of acid to a pint of water, or a solution of that proportion or its equivalent.

Rule 5. Parents, guardians, or householders in whose house typhoid fever exists shall treat all discharges in covered vessels in accordance with the directions of the North Carolina State Board of Health.

RULES GOVERNING THE MANAGEMENT OF CEREBRO-SPINAL MENINGITIS.

[Epidemic Meningitis.]

Rule 1. Every parent, guardian, or householder, in the order named, in whose family or household cerebro-spinal meningitis [epidemic meningitis] exists shall post securely a placard with the name of the above disease printed thereon in a conspicuous place on the front of his or her home (when living in an apartment house or hotel, on the main entrance to the apartment or room) immediately upon the receipt of such placard from the county quarantine officer, and no one shall remove the said placard until fourteen days have passed since the beginning of the disease or until the written permission of the county quarantine officer has been obtained.

Rule 2. No parent, guardian, or householder, in the order named, in whose family or household cerebro-spinal meningitis [epidemic meningitis] exists shall permit any child or minor to attend any public or private school, Sunday school, church meeting, theater, party, picnic, or other public assemblage, or go near a public park, while the house is placarded.

Rule 3. No parent, guardian, or householder, in the order named, shall permit any child known to have been exposed to a case of cerebro-spinal meningitis [epidemic meningitis] to attend any public or private school, Sunday school, church meeting, theater, party, picnic, or public assemblage, or go near a public park, until ten days have elapsed since the time of exposure.

Rule 4. No person exposed to cerebro-spinal meningitis [epidemic meningitis] shall attend any public or private school, Sunday school, church meeting, theater, party, picnic, or other public assemblage, or go near a public park, within ten days of the date of exposure to the disease. This rule does not apply to physicians rendering professional services to cases of cerebro-spinal meningitis [epidemic meningitis].

Rule 5. No parent, guardian, or householder, while cerebro-spinal meningitis [epidemic meningitis] exists in the family or household, shall receive food supplies, including milk, from grocers and dairymen in containers that are to be returned while the disease exists in the family or household.

Rule 6. At the expiration of the quarantine, fourteen days from the beginning of the disease in a family or household, or when the written permission of the quarantine officer is obtained, the room or rooms occupied by the sick shall be thoroughly cleansed in accordance with the directions of the North Carolina State Board of Health.

RULES GOVERNING THE TEACHER OR PRINCIPAL

On The Appearance of Whooping Cough in the School Community.

Upon the receipt of an official notice from the county quarantine officer that whooping cough exists in a family or household from which children attend or have recently attended the school, the teacher or principal of such school is hereby empowered and required to enforce the following precautions against the spread of the disease:

1. No teacher residing in a family where there is a person sick with whooping cough and where the housing arrangements are such as to make contact of the teacher with the diseased person frequent or intimate shall attend a public or private school.

2. The teacher or principal shall make a statement to the school concerning the disease in accordance with the information of the pamphlet supplied him or her by the county quarantine officer, calling the attention of the pupils to the presence of the disease in the community, to the danger of the disease, and the means for preventing its spread.

3. The teacher or principal of the school shall distribute to the children or pupils of the school literature on the disease, supplied by the quarantine officer, and shall direct the children to give the said literature to their parents or guardians.

4. The teacher or principal of any school shall exclude from the school all children who have never had whooping cough and who live in families where the disease exists.

5. The teacher or principal shall observe the pupils daily for symptoms or indications of ordinary colds or spasmodic coughs, and shall observe especially those children who have never had whooping cough, and on finding a pupil with such indications of the disease shall exclude immediately such pupil from the school until the symptoms have disappeared or until a period of two weeks has elapsed.

6. The teacher shall caution the children frequently during the existence of whooping cough in the community as to the danger from coughing and sneezing without holding a handkerchief or cloth in front of their mouths and noses, and shall also caution the pupils as to the danger of eating from the same pieces of food, using the same slate and pencil, and other things in common that might convey small particles of saliva or nasal secretion from child to child.

7. The common dipper, drinking cup, and the open bucket shall be absolutely prohibited by all schools patronized by any community in which whooping cough exists.

RULES GOVERNING THE TEACHER OR PRINCIPAL

On the Appearance of Measles in the School Community.

Upon the receipt of an official notice from the county quarantine officer that measles exists in a family or household from which children attend or have recently attended the school, the teacher or principal of such school is hereby empowered and required to enforce the following precautions against the spread of the disease.

1. No teacher residing in a family where there is a person sick with measles and where the housing arrangements are such as to make contact of the teacher with the diseased person frequent or intimate, shall attend a public or private school.

2. The teacher or principal shall make a statement to the school concerning the disease in accordance with the information of the pamphlet supplied him or her by the county quarantine officer, calling the attention of the pupils to the presence of the disease in the community, to the danger of the disease and the means for preventing its spread.

3. The teacher or principal of the school shall distribute to the children or pupils of the school literature on the disease, supplied by the quarantine officer, and shall direct the children to give the said literature to their parents or guardians.

4. The teacher or principal of any school shall exclude from the school all children who have never had measles and who live in families where the disease exists.

5. The teacher or principal shall observe the pupils daily for any symptoms or indications of ordinary colds, and shall observe especially those children who have never had measles, and on finding a pupil with such indications of the disease shall exclude immediately such pupil from the school until the symptoms have disappeared, or until a period of one week has elapsed.

6. The teacher shall caution the children frequently during the existence of measles in the community as to the danger from coughing and sneezing without holding a handkerchief or cloth in front of their mouths and noses, and shall also caution the pupils as to the danger of eating from the same pieces of food, using the same slate and pencil and other things in common that might convey small particles of saliva or nasal secretion from child to child.

7. The common dipper, drinking cup, and the open bucket shall be absolutely prohibited by all schools patronized by any community in which measles exists.

RULES GOVERNING THE TEACHER OR PRINCIPAL

On the Appearance of Diphtheria in the School Community.

Upon the receipt of an official notice from the county quarantine officer that diphtheria exists in a family or household from which children attend or have attended recently the school, the teacher or principal of such school is hereby empowered and required to enforce the following precautions against the spread of the disease:

1. No teacher residing in a family where there is a person sick with diphtheria shall conduct or attend a public or private school.

2. The teacher or principal shall make a statement to the school concerning the disease in accordance with the information of the pamphlets supplied him or her by the county quarantine officer, calling the attention of the pupils to the presence of the disease in the community, to the dangers of the disease and the means of preventing its spread.

3. The teacher or principal of the school shall distribute to the children or pupils of the school the literature on the disease, supplied by the county quarantine officer, and shall direct the children to give the said literature to their parents or guardians.

4. The teacher or principal of any school shall exclude from the school all children who live in families where diphtheria exists.

5. The teacher or principal shall observe daily the pupils for symptoms or indications of ordinary colds and sore throats, and shall observe especially those children with history of probable association during the previous two weeks with known cases of diphtheria, and on finding a pupil with such indications of the disease shall exclude immediately such pupil from school until the symptoms have disappeared or until a period of one week has elapsed.

6. The pupils of the school shall be cautioned frequently during the existence of diphtheria iu the community as to the danger from coughing and sneezing without holding a handkerchief or cloth in front of their mouths and noses, and they shall also be cautioned as to the danger of eating from the same piece of food, using the same slate and pencil and other things in common that might convey small particles of saliva or nasal secretion from child to child.

7. The common dipper, drinking cup, and the open bucket shall be absolutely prohibited in all schools patronized by any community or family in which diphtheria exists.

RULES GOVERNING THE TEACHER OR PRINCIPAL

On the Appearance of Scarlet Fever in the School Community.

Upon the receipt of an official notice from the county quarantine officer that scarlet fever exists in a family or household from which children have recently attended the school, the teacher or principal of such school is hereby empowered and required to enforce the following precautions against the spread of the disease.

1. No teacher residing in a family where there is a person sick with scarlet fever shall conduct or attend a public or private school.

2. The teacher or principal shall make a statement to the school, concerning the disease, in accordance with the information of the pamphlets supplied him or her by the county quarantine officer, calling the attention of the pupils to the presence of the disease in the community, to the dangers of the disease, and the means of preventing its spread.

3. The teacher or principal of the school shall distribute to the children or pupils of the school the literature on the disease, supplied by the county quarantine officer, and shall direct the children to give the said literature to their parents or guardians.

4. The teacher or principal of any school shall exclude from the school all children who live in families where scarlet fever exists.

5. The teacher or principal of any school shall observe the pupils daily for nasal discharge, sore throat, skin eruption, and history of association during the previous week with known cases of scarlet fever, and on finding a pupil with such history and symptoms, shall exclude immediately such pupil from school until the symptoms have disappeared, or until a period of one week has elapsed.

6. The pupils of the school shall be cautioned frequently during the existence of scarlet fever in the community as to the dangers from coughing and sneezing without holding a handkerchief or cloth in front of their mouths and noses, and they shall also be cautioned as to the danger of eating from the same piece of food, using the same slate and pencil and other things in common that might convey small particles of saliva or nasal secretion from child to child.

7. The common dipper, drinking cup, and the open bucket shall be absolutely prohibited in all schools patronized by any community or family in which scarlet fever exists.

RULES GOVERNING THE TEACHER OR PRINCIPAL

On the Appearance of Smallpox in the School Community.

Upon the receipt of an official notice from the county quarantine officer that smallpox exists in a family or household in which children attend or have recently attended the school, the teacher or principal of such school is hereby empowered and required to enforce the following precautions against the spread of the disease:

1. No teacher residing in a family where there is a person sick with smallpox shall attend a public or private school.

2. The teacher or principal shall make a statement to the school concerning the disease in accordance with the information of the pamphlet supplied him or her by the county quarantine officer, calling the attention of the pupils to the presence of the disease in the community, to the danger of the disease, and the means for preventing its spread.

3. The teacher or principal of the school shall distribute to the children or pupils of the school literature on the disease, supplied by the quarantine officer, and shall direct the children to give the said literature to their parents or guardians.

4. The teacher or principal of any school shall exclude from the school all children who live in families where smallpox exists.

RULES GOVERNING THE TEACHER OR PRINCIPAL

On the Appearance of Poliomyelitis [Infantile Paralysis] in the School Community.

Upon the receipt of an official notice from the county quarantine officer that poliomyelitis [infantile paralysis] exists in a family or household from which children have recently attended the school, the teacher or principal of such school is hereby empowered and required to enforce the following precautions against the spread of the disease:

1. No teacher residing in a family where there is a person sick with poliomyelitis [infantile paralysis] shall conduct or attend a public or private school.

2. The teacher or principal shall make a statement to the school concerning the disease in accordance with the information of the pamphlets supplied him or her by the county quarantine officer, calling the attention of the pupils to the presence of the disease in the community, to the dangers of the disease and the means for preventing its spread.

3. The teacher or principal of the school shall distribute to the children or pupils of the school the literature on the disease, supplied by the county quarantine officer, and shall direct the children to give the said literature to their parents or guardians.

4. The teacher or principal of any school shall exclude from the school all children who live in families where poliomyelitis [infantile paralysis] exists.

5. The pupils of the school shall be cautioned frequently during the existence of poliomyelitis [infantile paralysis] in the community as to the danger from coughing and sneezing without holding a handkerchief or cloth in front of their mouths and noses, and they shall also be cautioned as to the danger of eating from the same piece of food, using the same slate and pencil and other things in common that might convey small particles of saliva or nasal secretion from child to child.

6. The common dipper, drinking cup, and the open bucket shall be absolutely prohibited in all schools patronized by any community or family in which poliomyelitis [infantile paralysis] exists.

RULES GOVERNING THE TEACHER OR PRINCIPAL

On the Appearance of Cerebro-Spinal Meningitis [Epidemic Meningitis] in the School Community.

Upon the receipt of an official notice from the county quarantine officer that cerebro-spinal meningitis [epidemic meningitis] exists in a family or household from which children have recently attended the school, the teacher or principal of such school is hereby empowered and required to enforce the following precautions against the spread of the disease:

1. No teacher residing in a family where there is a person sick with cerebro-spinal meningitis [epidemic meningitis] shall conduct or attend a public or private school.

2. The teacher or principal shall make a statement to the school concerning the disease in accordance with the information of the pamphlet supplied him

or her by the county quarantine officer, calling the attention of the pupils to the presence of the disease in the community, the dangers of the disease, and the means of preventing its spread.

3. The teacher or principal of the school shall distribute to the children or pupils of the school the literature on the disease, supplied by the county quarantine officer, and shall direct the children to give the said literature to their parents or guardians.

4. The teacher or principal of any school shall exclude from the school all children who live in families where cerebro-spinal meningitis [epidemic meningitis] exists.

5. The pupils of the school shall be cautioned frequently during the existence of cerebro-spinal meningitis [epidemic meningitis] in the community as to the danger from coughing and sneezing without holding a handkerchief or cloth in front of their mouths and noses, and they shall also be cautioned as to the danger of eating from the same piece of food, using the same slate and pencil and other things in common that might convey small particles of saliva or nasal secretion from child to child.

6. The common dipper, drinking cup, and the open bucket shall be absolutely prohibited in all schools patronized by any community or family in which cerebro-spinal meningitis [epidemic meningitis] exists.

MEMORIAL EXERCISES

REPORT OF COMMITTEE ON OBITUARIES.

Mr. President, Ladies and Gentlemen:

As chairman of your Committee on Obituaries, I owe to this Society an explanation as follows:

At the annual meeting of 1916 at Durham, the report of said committee was sidetracked and prevented by an unusual incident, which left us no other alternative. Two days before that meeting, I received a telegram from Dr. John A. Wyeth of New York City—one of America's ablest and most honored surgeons—asking if this Society would be interested in witnessing a moving-picture demonstration of the technic of his surgical operations, the exhibition to be given by his New York representative. I conferred with the President and Secretary over the long distance phone and was authorized to accept his offer in the name of the Society. I wired him to this effect, and his representative came. The program—a full one—was already in the hands of the members; and there was no way to make a place for him thereon, unless some member gave up the time allotted to himself. That courtesy and duty fell to me and our report was not presented.

Through some accident, while rearranging my office, the said report was mislaid and lost until too late to be included in the 1916 Transactions. And so it must cover, tonight, two years instead of one.

Respectfully submitted,

A. W. Knox,
E. G. Moore,
I. W. Faison,
Committee.

JAMES ANNERTON TURNER.

Dr. James Annerton Turner, who died in High Point on August 28, 1915, was born near Siler City, in Chatham County, on April 17, 1854. Reared on the farm and being a close observer made him a careful student of nature, and fitted him for the profession which he later chose.

He was educated in the common high schools of his native county. When he chose his lifework, which was the practice of medicine, he attended the College of Physicians and Surgeons of Baltimore one year, graduating at the Louisville Medical College in 1886. He then went to

his native county and practiced for a short time, leaving there for Little's Mills, where for two or three years he practiced, being very successful at each of these locations; then to High Point, where he rapidly built up a lucrative practice.

In February, 1904, he married Miss Fannie Myers Little, of Little's Mills. The result of this marriage is one son, James A. Turner, Jr.

Doctor Turner was a man forceful, original, versatile, yet never thrusting himself forward, but backward to the extent that he seldom gave to the world the good ideas he had. He was "like timid violets with their fragrance unaware." One case in point was that in the fall of 1889 I remember very distinctly his observation that mosquitoes were responsible for the transmission of malaria. He arrived at his conclusion on account of the great prevalence of mosquitoes and malaria that fall. He always held to this belief. In 1897, eight years afterwards, Dr. Ronald Ross proved that the mosquito was the means of its transmission.

I remember some time ago, in speaking of pellagra, he advanced the theory that it was caused by some chemical element getting into the food stuffs from commercial fertilizers, generally in corn. I have no doubt but that pellagra is caused by some such element, usually in corn, and whether or not it is from commercial fertilizer remains to be proven. Anyway, it is a very plausible theory.

One of the strongest appeals I ever heard was from the Doctor when he appeared before the county commissioners several months ago asking them to change the name of the "County Home" to that of the "County Hospital," for the reason that notwithstanding it was called no longer the poorhouse, yet County Home was practically synonymous; there was odium attached to it, and a reflection upon a person to die there; and no child now who should become a man or a woman in after years but would feel ashamed to say that some of their kin died in the county home, yet it is no disgrace to die in a hospital. Every inmate there is diseased, either mentally or physically, which would account for their making it their home. The only argument against such a proposition was that it might popularize the place; and he met that supposed argument by saying that the people in charge, if they could run it in its present condition, ought to be able to manage it as a hospital without being imposed upon.

In his own city he was very largely, if not solely, responsible for the building of a factory where girls could work and take care of themselves. Practicing in different classes of families he saw the great need for such a work. He was in every sense of the word an altruist.

The elements were very happily blended in him to make the finest of physicians, and well he bore himself as a man, a friend and a physician. He accomplished no ends except in direct and always honorable means. As a physician, he considered first the welfare of his patients, and thought out with patience and eagerness the best means to relieve their suffering, and always gave his best services for their restoration to health—a physician of fine ability, always directed in worthy channels, and never for ignoble ends. His manner in the sickroom was always soothing and cheering to the patient, and with a most quiet and kindly touch he bound up the wounds of the afflicted. Implicit confidence could always be reposed in him, for he never abandoned a friend or betrayed a trust. He disregarded the ostentations of life; he did good deeds for their own sake, and not for hope of reward or regard for personal consequences. He was content with the supreme reward of duty done. He had the strength to do good and the strength to resist evil.

His many friends who enjoyed the pleasure of his friendship mourn his death with unfeigned sorrow, and their expressions are genuine and not words of meaningless exaggeration.

Some months before the final summons came, he realized that he could not live much longer; and in his office one day he wrote a letter to his wife and son, and closed with these words:

"I would so much like to care for you both longer, but all is in the hands of God, in whom I trust you and my future. May God bless and care for you both."

That expression shows the true man he was, wishing to take care of his wife and son longer, but bowing submissively to God's will.

When he approached the mystic river which he must soon cross, he did not see any angry or boisterous waves to make him afraid, but only the placid stream. Yes, he even saw angelic hands beckoning him on to receive that welcome plaudit, "Well done."

J. T. J. Battle.

RICHARD HENRY WHITEHEAD.

Richard Henry Whitehead was born in Salisbury, July 27, 1865, being the youngest son of Dr. Marcellus Whitehead and Virginia Coleman Whitehead. His childhood and early manhood were spent in Salisbury. During this period he felt the strong influence of his talented father, and later, after the death of his father, an older brother, Dr. John Whitehead, guided him in his early adventures. As a child Richard Whitehead was devoted to flowers, and showed an intense interest in their welfare. Welfare is the word I select to use, for to him these things of

nature had a personality that required care and protection. At an early age he developed a marked liking for books and would spend hours engrossed in reading and study. His early education was obtained in different private schools in the town of his birth. Between the age of thirteen and fifteen, he came in contact with one of the men who very largely influenced his student days. This was Dr. Murdock, an Episcopal minister, who was devoted to boys and to whom the boys looked in turn for spiritual and intellectual guidance. Dr. Murdock established in Salisbury a private school, at one time known as the Episcopal High School, and here Dr. Whitehead studied with all of his characteristic enthusiasm for the deeply satisfying things in life and was inspired by that fine type of classical teacher which is fast becoming an influence of the past.

After a few years of instruction under Dr. Murdock, Dr. Whitehead spent a year at Horner's Military School at Oxford, and the following autumn he registered as a student at Wake Forest College, from which he was graduated in the spring of 1886 with the degree of Bachelor of Arts. His stay at Wake Forest was characterized by his devotion to his studies, which gave him a place of high standing, especially in the classical branches, in which he was deeply interested and proficient. The appreciation of this type of intellectual training gave him a comprehensive grasp of the history of the past, and the fineness of this type of culture was reflected in his attitude towards modern movements and towards men.

The summer of 1886 found Dr. Whitehead at Salisbury, where he spent hours each day engrossed in the study of anatomy and physiology. His power of concentration was remarkable. In the following fall he entered the Medical Department of the University of Virginia, and completed in one year with high distinction the regular two-year medical course then offered at the University of Virginia. During this year of medical study he came to know in an intimate fashion Dr. Towles, the professor of anatomy. Dr. Towles at once appreciated the brilliancy and studious nature of his young pupil and appointed him demonstrator of anatomy. In this capacity he served during the sessions of 1887-88 and 1888-89. The association of Dr. Whitehead with Professor Towles resulted in the formation of a deep and understanding friendship, and the enthusiasm and teaching ability of Professor Towles very largely influenced his pupil in his final medical career.

The winter of 1889-90 was spent by Dr. Whitehead in study at hospitals in Philadelphia and New York. The summer of 1890 he returned to Salisbury to form a partnership with his older brother, Dr. John Whitehead, for the practice of medicine. It was the object of this part-

nership for the older member of the firm to confine himself to general medicine while Dr. Richard Whitehead was to attend to the surgery. Dr. Whitehead was an exceptionally well trained anatomist and had a zeal for surgery which remained with him in the years to come. His keen ability as a diagnostician enabled him to separate surgical from medical conditions and, when once decided on a course of action, he acted without fear of consequences.

During this summer Dr. Whitehead received a call to the University of North Carolina to be Dean of the Medical School and professor of anatomy. Perhaps here was the turning point in his life. He was passionately fond of surgery, but likely the recollection of the quiet, scholarly life of the teacher of his early student days, Dr. Murdock, and later the example of his teacher and firm friend, Dr. Towles, influenced him to such an extent that he accepted the call to the University. This was not an easy decision to reach, and for hours at a time he would think it over without seeking advice and without consultation with others. This was his way, when a question had to be decided he faced it, thought it out and acted.

Doctor Whitehead came to Chapel Hill in the fall of 1890 and began his new and difficult task with a quiet determination and deep enthusiasm which were characteristic of all his labors. He not only undertook the task of organizing a medical school, of teaching without assistance, anatomy, physiology, and materia medica, but he also served in the capacity of University Physician and very largely took care of the general practice in the village and surrounding country, which was left open through the death of Dr. W. P. Mallett.

The Medical School for the first year had but few students, but these felt the hand of a master teacher, leader and friend, and grew strong in thought and judgment. The school was a success from the start, and from year to year more men came to labor under, to learn to love, and to catch the spark of light from "Old man Dick."

On June 4, 1891, Dr. Whitehead was married to Virgilia Whitehead of Amherst, Virginia. His marriage was one of those unions of common mutual taste and understanding, and drew him ever closer to the quiet charm of his cultured home, where books and music, flowers and kindly mirth gave him deep and lasting happiness.

In 1896 the Medical School had proved so successful that, upon President Alderman's recommendation, it was incorporated as an integral part of the University and the one-year course of instruction was extended to a two-year course.

Doctor Whitehead was of the firm conviction that the first two years of the medical curriculum could be ably administered and best given in connection with a university and away from the distracting influences of the clinical side of medicine. His idea was that the teaching in these first two years should be given in a fine and thoroughly scientific fashion, by competent men, to students of such high school and academic training as would be able to appreciate and master the best.

As a result of Dr. Whitehead's high ideals in medical education and his fine practical accomplishments at the University, his advice was eagerly sought and his judgment appreciated by medical educators throughout this country. His influence is now felt in numerous institutions which have been reorganized and placed on a modern basis.

In 1905 Dr. Whitehead was called to the chair of anatomy and deanship of the Medical Department of the University of Virginia. Perhaps reluctantly he went to Charlottesville for a consultation with President Alderman. Some hours passed during which the situation at Virginia received his quiet, careful consideration. Finally, with his mind made up, but with the vision of his work, his home and his rose garden at Chapel Hill, he asked: "Can you raise roses in Charlottesville?"—and the fineness of his soul was satisfied.

The remainder of Dr. Whitehead's life was spent at the University of Virginia. At this institution, with keen foresight and calm, unflinching determination, the Medical Department was reorganized. The story of this work is yet in the making.

Early on the morning of February 6, 1916, this fine, strong soul slipped into the infinite.

> "E'en as he trod that day to God so walked he from his birth,
> In simpleness and gentleness, and honor and clean mirth."

Wm. deB. MacNider.

WILLIAM LAMAR CRUMP.

Dr. William Lamar Crump was born in Davie County, N. C., in February, 1857, and died in Salisbury January 17, 1917, being a little less than sixty years of age.

Doctor Crump received his early education in the Salisbury city schools, afterwards attending the Finley school at Lenoir, at that time one of the leading institutions of its kind in the State. Later he attended Davidson College and, having picked the medical profession as his chosen calling, entered Jefferson Medical College at Philadelphia, from which he graduated with distinction and was licensed to practice medicine in 1879. He was married in 1880 to Miss Nettie Turner, of

Statesville, and took up his residence at South River, Rowan County, where he built up a large practice and where his home became famous for its hospitality, and where, in the manner of a true southern gentleman, he lived and entertained for a period of sixteen years. In 1896 he moved into Salisbury and lived there until compelled to give up active work.

Doctor Crump was a public spirited citizen and never undertook to block a move looking to the advancement of his city and county in any way. He was generous, charitable, and kind, a wholesouled man, and was true and loyal to his friends. In his work as a physician he administered faithfully to those whom he was called to treat. It was known only to himself the amount of charity he dispensed in his practice as a physician, healing the sick and alleviating the pain of the suffering. No man was more universally liked in his community, and when the roll of honor of great men who lived and labored in the profession is made up the name of Dr. W. L. Crump will be seen there. That he was a doctor of medicine was a mere incident, it was the man who counted. He gave honor to the profession, the title only giving deserved recognition to the man. Dr. Crump was a great man, but he was great because he prepared himself to be great. It was not chance that brought him fame, but because he had done those things that bring fame. While his life gave honor to the community, his deeds added dignity and glory to the profession. Not alone kind and courageous, but he possessed a wisdom and a breadth of vision which placed him in the front ranks of men.

That he is dead brings sadness to every one that knew him. He had affections placed in the hearts of the lowliest, his friendship was a gem of great price with the highest. Many tributes in high terms were paid the memory of this splendid man, but there were none higher than that genuine regret which was in the hearts of the many lowly patrons for whom he gave his life.

C. M. Van Poole.

JOHN HERBERT MEASE.

John Herbert Mease, M. D., born Canton, N. C., August 26, ——; died Goldsboro, N. C., September 24, 1916. Graduated Vanderbilt University 1893; licensed 1893; joined the Society in 1894. Married Miss Hester Smathers November 14, 1895. They had two boys and two girls, all living. Served in Legislature of North Carolina. At time of death was president of Haywood County Medical Society, and First Lieutenant in Ambulance Company No. 1, N. C. N. G.

THOMAS J. DEAN.

Dr. Thomas J. Dean, of Nashville, N. C., born in Franklin County, N. C., September 17, 1885. Graduated University of the South in 1908. Died February 5, 1916, at the age of 30.

HENRY H. WHITAKER.

Dr. Henry H. Whitaker was born at Hilliardston, Nash County, N. C. He graduated at the University of Maryland, in 1883, and died October, 1916, at 61.

PAUL PAQUIN.

Dr. Paul Paquin died in Kansas City, Mo., in February, 1916. He was not actively affiliated with this Society, but was still a member.

G. D. EVERINGTON.

Dr. G. D. Everington died on December 24, 1915, of organic heart disease, with which he suffered a number of years. He first practiced pharmacy in Laurinburg, but afterwards obtained license to practice medicine and continued in active practice until shortly before his death.

J. W. LONG.

Dr. J. W. Long, of Newton, N. C., was born February 15, 1858, and died June 11, 1916. He was a member of the Catawba County Medical Society and of the State Medical Society.

SAMUEL W. STEVENSON.

Dr. Samuel W. Stevenson, of Mooresville, N. C., died Saturday afternoon at 5 o'clock, April 15, 1915, having been a practicing physician of Mooresville and surrounding country for forty years. Dr. Stevenson was 72 years of age April 1. He twice represented Iredell County in the Legislature and was also active in church work, being an elder in the Presbyterian Church.

THOMAS S. BURBANK.

Dr. Thomas Sparrow Burbank, a leading physician of Wilmington, N. C., died July 12, 1915, after an illness of some time. He was in his sixty-first year. Dr. Burbank was formerly a member of the State Board of Medical Examiners and was for some years a member of the Wilmington Board of Health.

KENNETH M. CLARK.

Dr. Kenneth M. Clark, of Kittrell, N. C., died in a hospital at Richmond, August 9, 1915, after an illness of some time. Surviving him is one sister, Miss Marina Clark, of Franklin.

W. T. TURLINGTON.

The death of Dr. W. T. Turlington, a prominent physician of Fremont, occurred March 30, 1915, suddenly of apoplexy. He had a wide circle of friends and his death will be sincerely mourned.

CHARLES T. HARPER.

The funeral of Dr. Harper, of Wilmington, N. C., whose death occurred at his sanitarium, Monday afternoon, was held August 11, 1915, from his residence in the presence of many friends and relatives. Interment was in Oakdale Cemetery. Intestinal obstruction following appendicitis.

E. A. COVINGTON.

Dr. Covington, of Wadesboro, N. C., died suddenly of apoplexy, September 12, 1915. He was greatly beloved and had been identified with the best interests of the county since before the Civil War. He was in his seventy-seventh year and is survived by his wife and a number of nieces and nephews.

S. B. WOODY.

Dr. S. B. Woody, of Spring Creek, N. C., forty-nine years old, one of the best known physicians of Western North Carolina, died at his home, August 29, 1915, following an operation for appendicitis. He is survived by his widow and three children.

NICHOLAS G. MOORE.

Dr. N. G. Moore, of Mooresville, N. C., aged forty-eight years, died September 19, 1915, at Long's Sanatorium, of septicemia. Surviving him are his widow and five children.

J. B. KENNEDY.

Dr. J. B. Kennedy, of Falling Creek, Wayne County, after a protracted illness, died at his home September 29, 1915, at the age of seventy years. He was a skillful, typical country doctor of the old school, and his death will bring genuine sorrow to all that knew him.

ANTHONY B. JONES.

Dr. A. B. Jones, of Leaksville, died August 9, 1915, after a short illness. Dr. Jones was a representative from his county in the Legislature and was prominent in his church.

HENRY McKEE TUCKER.

On November 24, 1915, at Rex Hospital, in Raleigh, there passed into "The Great Beyond" the gentle but manly spirit of Henry McKee Tucker, following a brief but desperate illness resulting from mastoiditis and cerebro-spinal meningitis. Nearly forty years of age, in the prime of his vigorous manhood—with the success and rewards of a rapidly growing professional career opening out before him—he was fatally stricken and cut off untimely by the relentless sweep of that most deadly type of streptococcic meningitis, which does not yield to the beneficent Flexner serum.

Courteous, kindly, considerate of those about him, and of those who held opinions at variance with his own, he loved his friends and stood by them with loyal devotion.

In his death, the Society has lost an honored member, a zealous and progressive worker, an associate of high gifts and attainments in his profession, and one who sought the promotion of its interests and welfare with unflagging zeal.

Touching tributes have appeared in many North Carolina papers, expressive of the deep community sense of loss and bereavement arising from his early death. (It is my impression that he was at the time of his death the Treasurer of this Society. He was a short time before, I am sure.) And his brethren in the medical profession now desire to place on record their appreciation of his manly character and nobility of soul, the devoted and lasting esteem in which they held him as a friend. There are none among us, in whom the spirit of joy did not rise higher at the touch of his friendly hand—the glint of his merry eye; and our lives are all the poorer for his loss. But his works do live after him; and his friends and associates will keep his memory green with their unchanging love and affection. They will hold him in their hearts as one who was "allured to brighter worlds and led the way."

A. W. Knox.

ELBERT A. MOYE.

Dr. Elbert Alfred Moye died at his home in Greenville, N. C., July 10, 1914. Dr. Moye had been ill for several years, never recovering from an apoplectic attack, this being followed by paralysis. He is survived by his widow and three children.

BENJAMIN T. PERSON.

Dr. Benjamin Thomas Person, of Fremont, N. C., died Sunday afternoon at the home of hs son. He was much beloved and many will sincerely mourn his death. He was interested in politics, being postmaster here from 1903 until 1914. He served with distinction throughout the Civil War.

F. O. HAWLEY.

Dr. F. O. Hawley, of Charlotte, N. C., died September 14, 1915, after a lingering illness. He was very prominent, having been city physician for years, a Confederate soldier and an elder in the Presbyterian Church. He is survived by his wife and three children.

M. C. CHAMBLEE.

Dr. M. C. Chamblee died at his home in Wakefield, October 5, 1915, after an extended illness. He was one of the most prominent citizens of his county, being successful, not only as a physician, but as merchant and farmer. He leaves a widow and three children.

JOHN A. COLLINS.

On December 23, 1915, that chivalrous gentleman, gallant soldier, Dr. John A. Collins, of Enfield, N. C., was summoned to lay aside the instrument of this mortal conflict and receive his reward. Dr. Collins was born in Castle Ireland, Munster, Ireland, Christmas day, 1836, and lacked two days being seventy-nine years of age. He was a skillful physician, a faithful friend, a devoted husband and indulgent father.

A. M. BALLARD.

Dr. A. M. Ballard, of Asheville, died April 4, 1916, after a brief illness of pneumonia. He was a practicing physician of this city for thirty-five years, and was beloved by every one.

W. G. HEADEN.

Dr. W. G. Headen, of Morehead City, died March 18, 1916. He was prominent as a physician, broker and church member. He was a trustee of the Eastern Hospital, Goldsboro, N. C., and member of Board of Directors of Bank of Morehead City. He is survived by his wife and two children.

J. H. BORNEMANN.

Dr. J. H. Bornemann, of Wilmington, N. C., was drowned Sunday morning, August 8, 1915. He was the son of Mr. and Mrs. J. H. Bornemann, being thirty-four years of age. He was assistant to the Chief Surgeon A. C. L. R. R. Company. He was splendidly equipped and had a bright future before him in his profession. Many will mourn his tragic death.

MORRIS CALDWELL.

Dr. Morris Caldwell, of Wilmington, N. C., was drowned Sunday morning, August 8, 1915. He was the son of Mr. and Mrs. R. V. Caldwell, of Concord, N. C. He was superintendent for two years of the James Walker Memorial Hospital and for the last several years was engaged in general practice, and was also resident surgeon of the S. A. L. R. R. Company. He is survived by his wife, who was Miss Florence Hayes, of Claridge, Pa.

THOMAS L. NORTHRUP.

Dr. T. L. Northrup, of St. Pauls, Robeson County, died at the Charlotte Sanatorium, March 13, 1916, after an attack of acute Bright's disease lasting ten days. He enjoyed a large practice at St. Pauls for twenty years, and was one of the most capable and best equipped physicians in the State. He was president of the bank of St. Pauls, a director in the St. Pauls Cotton Mill, and was a loyal and devoted member of the St. Pauls Presbyterian Church. At the time of his death he was president of the Robeson County Medical Society, and a member of the Robeson County Board of Health. He graduated at the University of Maryland after two years at the University of North Carolina.

GEORGE W. LONG.

I shall give here but a sketch of Dr. Long, because there will be published in this year's Transactions the reprint of an extended appreciation of his life and character, which was read before the State Historical Commission by Dr. L. J. Picot, on the occasion of the presentation of Dr. Long's portrait to that body a few months ago.

Dr. Long was born in Alamance County, July 15, 1848, and died on October 16, 1915. He was specially well prepared for his life work; and it can truly be said of him that "both the prince and the pauper—when overtaken by sickness and pain—looked just alike to him." His medical education was obtained at the University of Pennsylvania, from which he was graduated in 1874. His standards were high, his ideals pure. He was an earnest and persistent student, diligent in every branch of

Dr. Henry Theodore Bahnson.

medicine—his ambition being to gain ever-increasing knowledge, that he might be of the highest service to suffering humanity. He was a member of the Sixth State Board of Medical Examiners, on which he served six years. He was also a former President of this Society—the highest gift of that body—and he well deserved that honor. For many years he was Superintendent of Health of Alamance County, and no county had a more zealous, untiring and efficient officer. Dr. Long was prominent in church work, being many years an elder in the Presbyterian Church. Surviving him are his wife and two children.

A. W. Knox.

Dr. A. W. Knox, Raleigh: Dr. Lewis has written a most admirable paper in appreciation of the late Dr. Henry T. Bahnson. We are disappointed that Dr. Lewis cannot be present to read it, in person; but he is detained at home by sickness and has asked me to present it for him.

It was my purpose to read this paper at the *close* of my report of the Committee on Obituaries; but as the hour is late—now after 10 p. m.—and fearing to weary you by its further postponement, I have chosen to bring it forward and read it now, because I wish to present some resolutions as to Dr. Bahnson's worthiness of a place in the State's Hall of History and would like for as many of you as possible to be present and consider those resolutions.

HENRY THEODORE BAHNSON

Henry Theodore Bahnson, the son of Rev. George Frederic and Ann Gertrude Pauline (Conrad) Bahnson, was born March 4, 1845, at Lancaster, Pa. Four years later his father was called to the pastorate of the Moravian Congregation at Salem in our State, where he later became the Southern Bishop of his Church, in which capacity he was a tower of strength, helpfulness and comfort to his people, especially during the dark and dreadful period of the war.

His academic education was begun at the Salem Boys' School, continued at the noted Moravian School, Nazareth Hall, in Pennsylvania, and concluded at Moravian College and Theological Seminary at Bethlehem.

Returning to his home early in 1862, he promptly volunteered at the age of seventeen as a private in Company G, Second North Carolina Battalion of Infantry. Captured at Gettysburg, he was imprisoned in the Baltimore City jail at Point Lookout, Md., for six months. During his captivity he was vaccinated with impure virus, probably the remote cause of the caries of the left elbow joint which later caused him years of intense suffering, until the joint was successfully resected

by his teacher and friend, the well-known surgeon, D. Hayes Agnew, of Philadelphia. In January, 1864, he was exchanged and soon afterwards was transferred to Company B, First North Carolina Battalion of Sharpshooters, in which he served until he surrendered with General Lee at Appomattox.

In an article entitled "The Last Days of the War, as Seen by a Confederate Private," published in the *North Carolina Booklet* of April, 1903, he gives a vivid picture of the horrors of war, a portrayal eloquent in its simplicity and directness of the heroic courage, endurance, and devotion of the ragged, unwashed, half-starved remnant of the famous army of Northern Virginia who laid down their arms only at the command of their immortal leader. There could be no more impressive proof of the hardships of this final campaign from Petersburg to Appomattox than his statement that on his return home he had lost 38 pounds in weight and was so emaciated and filthy that his own father failed, at first, to recognize him. Knowing him as we did we can well understand, although he made no such claim himself, and in fact for years afterwards rarely ever referred to his military experiences, that no one excelled him in the noble qualities which characterized that glorious army. If further proof of this were needed it is found in the fact that at the age of twenty years he was promoted from the ranks to the captaincy of his battalion, although in the confusion of those last awful days his commission was never delivered, and he laid down his deadly rifle as a private—a fact which in subsequent years he often referred to with pride.

In 1866 he entered the Medical Department of the University of Pennsylvania and was graduated M. D. in 1867, receiving with his diploma a special certificate in Practical and Surgical Anatomy. Soon after his graduation he went abroad and spent two years in study at the Universities of Berlin, Prague and Utrecht. Receiving his license from the Board of Medical Examiners in 1869, he began the practice of his profession at his home town of Salem. As was to have been expected from this thorough training of his naturally strong, alert, versatile mind, coupled with energetic and enthusiastic devotion to his profession, he rapidly advanced and was soon recognized as one of the leading practitioners not only of his immediate section, but of the State, more especially as a surgeon. For this particular branch of our profession he was peculiarly gifted. He was careful and painstaking in diagnosis; prompt and decided in action after coming to a conclusion; accurate and skillful in manipulation; ingenious and resourceful in meeting difficulties and, above all, he loved surgery. There was a completeness and finish not only in his surgical work, but in

everything he did. And in judging his success we should bear in mind the difficulties encountered in his environment—the fact that very many operations had to be performed in remote country homes where the word "sanitation" had never been heard.

During his membership of nearly fifty years in this Society he always stood out as one of its leading men. In the reading of able papers and in intelligent discussions of both medical subjects and questions bearing on the welfare of the Society and the advancement of the profession, he was ever in the forefront. A man of honor himself he was very jealous of the honor of his profession and of its embodiment in our Society. He was intolerant of violations of the code of ethics and an ardent champion of the high standard of conduct set forth therein. His worth was recognized by the Society and rewarded by the gift of its highest honors—by his election to its presidency; as a member of the State Board of Medical Examiners, of which he was secretary, and as a member of the State Board of Health of which he was president. He was likewise president of the Association of Southern Railway Surgeons, Chief Surgeon of the Southbound Railway, member of the American Public Health Association, the American Medical Association, the Tri-State Medical Society, and for many years the leading member of his own Forsyth County Medical Society. He was also at one time a valued member of the board of directors of the State Hospital at Morganton.

In civic life he was public-spirited and progressive, lending a ready and helpful hand to movements for the uplift and betterment of his community and State. He sympathized with the suffering and helped the poor, not alone with professional advice, but with more material aid, without ostentation.

He was a leading member of the Masonic Fraternity, having attained the 32nd degree and having been nominated to the honorary 33rd degree, the acceptance of which, however, circumstances at the time prevented.

He was a member of the Moravian Church, filling its various offices with earnestness and zeal. For many years he was physician to the famous Salem Academy and College and was much beloved by its faculty and students.

In social life he was a pure-minded man, an interesting and informing companion, having read widely and traveled extensively, a generous host, a loyal friend and always the polished, courtly gentleman. He was singularly blest in wife and children, and his domestic life with the spirit of unselfishness, mutual confidence, respect and affection which pervaded it was that of the ideal Christian home.

Doctor Bahnson, as appears from the excellent likeness accompanying this memorial, was a handsome man and, being likewise tall of stature, he possessed that quality we speak of as "distinguished-looking." He would be noticed in any crowd. The picture clearly shows the firmness and determination, tempered with kindliness, which belonged to him. He was of an ardent and impetuous temperament, and at times he was perhaps somewhat rash and hasty in his judgments, but he would later review and soften them with the generosity that is usually associated with such a spirit. Of the many fine qualities of mind and heart that have already been alluded to, the one that stands out as most characteristic is courage, both physical and moral. He was a man of strong convictions which he dared maintain with force and boldness. He was no trimmer. And his was more than the courage that flares up and shortly dies down—not alone the gallantry of the battlefield that with cheerfulness faced death at the cannon's mouth, but also of the finer quality that for years bore with fortitude the suffering incident to a diseased elbow joint and for months the heart-rending agonies of the angina pectoris which caused his death. To quote a mutual friend who knew him well, he is probably best described by the word "game."

On January 16, near the end of his seventy-second year, having fought a good fight, having finished his course, having kept the faith, he rested from his labors and laid down forever the burden of his sufferings. Two days later he was buried from the Home Church, within whose shadow he had passed his long and useful life. The church was filled with sorrowing friends, the Forsyth County Medical Society, the Confederate Veterans, the Daughters of the Confederacy, and the nurses from the hospital each attending in a body. The solemn and impressive burial service of the Moravian Church included a very beautiful and touching tribute by his lifelong friend and pastor, the Reverend Bishop Rondthaler. Thence his body was borne to the near-by Moravian cemetery, so appealing in its simplicity and freedom from ostentation to the higher Christian taste, and reverently laid to rest.

"Rest comes at length, though life be long and dreary,
The day must dawn and darksome night be past.
Faith's journey ends in welcome to the weary
And heaven, the heart's true home, will come at last."

RICHARD H. LEWIS.

DR. A. W. KNOX, Raleigh: I wish to add a few words here, myself. I feel so sure that Dr. Bahnson was of that *superfine* type of high-class man and physician to which Dr. Lewis's paper has assigned him that I entertain no doubt whatever that I correctly represent the feelings of this Society when I move the adoption of the following resolution:

Resolved, That the late Dr. Henry Theodore Bahnson, by his high character as a man, his eminent professional ability and attainments, his prolonged and zealous service to this Society and to humanity, has so endeared himself to us all that it is the sentiment of the Medical Society of the State of North Carolina that he is worthy of a place in the Hall of History, where his memory should be lastingly commemorated by his portrait being upon its walls.

Moved by Dr. A. W. Knox that the resolution be adopted; seconded that Dr. Bahnson be given his place in the Hall of History.

Dr. Cyrus Thompson: I had it in mind to rise and second this motion. Now, it is hardly necessary for me to do so because it has been seconded by several gentlemen in their seats already. I am going to occupy only a little bit of your time. If there were two men in the State Medical Society that were of surpassing excellence in an unusual way, one of these men was the subject of the paper read by Dr. Knox and the other is the writer of the paper. Both of them were older than I am, and when I first got acquainted with either of them I have no sort of recollection. I loved them so that it seems like I always knew them, and that they were always here and always would be here. I promised not to take up much time and I am not going to. There is not anything more interesting in all the world to consider than men and the characters of men. I remember some years ago I knew a distinguished and saintly Baptist preacher, and telling some friend about him I said, "He was of the material, he was of the type, he had in him the qualities, out of which twenty-five hundred years ago God Almighty would have made a strong Hebrew Prophet"; and whenever I have seen Dr. Bahnson and been associated with him it never occurred to me that God would have made out of that type of man a prophet of the Hebrew sort, but it did always occur to me that for the sweetness of life, for a model of man, Dr. Bahnson was as near perfection as the Lord God Almighty had ever put down in the State of North Carolina. To say that he was knightly—everybody knew that that knew him at all—he was the very soul of courtesy, commandingly dignified and sweetly affable. It was delightful to know him and to be with him, and if a man had a son and desired for his son the highest qualities of strong and gentle manhood he could have said, "My son, look at Dr. Bahnson and be like him; and if you will, if you can, I shall be satisfied."

This resolution proposes to let his picture be placed in the Hall of History. Considering his qualities and the inspiration of his life, that is where it ought to go. There is no objection and there can be no objection to its going. We do ourselves honor in honoring him. He illustrates the highest type of us. When he went away our ranks were thinned, and his character was such that with his going the ranks could not be closed because there was nobody to take his place.

Dr. C. O'H. Laughinghouse: It has been moved and seconded that Dr. Bahnson be given his place in the Hall of History. All favoring this motion will please rise. The motion is unanimously carried.

Dr. C. M. VanPoole, Salisbury: I failed to hear mention of Dr. W. L. Crump of Salisbury. He was a good man and I would like for something to appear on the records concerning his life. If you will permit me to do so I shall be glad of the opportunity of furnishing an obituary of Dr. Crump.

Dr. Knox: The committee will be glad to have Dr. VanPoole furnish such obituary and send it to the Secretary of the Society for publication.

Dr. VanPoole: It will afford me much pleasure to do so.

Dr. Joseph Graham, Durham: Dr. MacNider has kindly given us a brief history of the life and work of Dr. Whitehead. We all loved Dick Whitehead and we are glad to honor him and to express our appreciation of his love for us. I wish to make a motion that the Chair be requested to appoint a committee of three members of this Society to secure and place a picture of Dr. Richard Whitehead in the Hall of History of the State of North Carolina.

It is moved and seconded that this Society appoint a committee of three for the purpose of securing a picture which will be placed in our State Hall of History in recognition of our esteem of Dr. Richard H. Whitehead. Motion unanimously carried by a rising vote.

Dr. J. Howell Way: I move that the Secretary of the Society be instructed from year to year to send to the families of deceased members whose obituaries are recorded in our Transactions, a copy of the annual volume containing such obituaries. I desire to secure the adoption of this with a view to its being a permanent order of this Society. I appreciate the fact that the Secretary may always intend to do that, but that with a large mailing list of more than a thousand members and the mailing list to which the Transactions go very often does not have the name of the deceased brother, and in that way it is possible—in fact, I know from my personal knowledge, that the families sometimes do not receive the volume of the Transactions. The expense is slight to the Society and I think we ought to do it.

Motion seconded by Dr. L. G. Beall and Dr. J. T. J. Battle.

Dr. Charles O'H. Laughinghouse: It is moved and seconded that the Secretary of the Society be instructed to send to the families of de-

ceased members of this Society a copy of the Transactions in which record and reference is made by the Obituary Committee.

Motion carried.

APPOINTMENT OF WHITEHEAD PORTRAIT COMMITTEE.

The following are appointed a Committee on Whitehead portrait: Dr. Wm. deB. McNider, Dr. Joseph Graham, Dr. W. F. Hargrove.

PORTRAIT OF DR. GEORGE W. LONG UNVEILED.

In the Hall of History, Raleigh, N. C., on the 13th of October, 1916, a portrait of Dr. George W. Long, of Graham, N. C., was presented to the State on behalf of the State Medical Society, the address of presentation being made by Dr. L. J. Picot, of Littleton. The portrait was accepted on behalf of the State by Hon. Walter Clark, Chief Justice of the Supreme Court of North Carolina. The addresses follow:

Address of Presentation by Dr. L. J. Picot.

Mr. Chairman and Gentlemen of the Historical Commission:

The subject of this life-like and beautifully executed portrait, the late Dr. George W. Long was born in Alamance County, N. C., July 15, 1848. His parents, Jacob and Jane Stuart Long, were also natives of this county. They belonged to a sturdy and independent race whose ancestors had fought the battles of liberty and whose deeds of valor helped forcibly to make the best there is of American history.

The Longs and his mother's forbears, the Stockards, were gallant soldiers in four historic wars, and left their blood upon many a fiercely fought field. The Long homestead, with its ample acres, was an old-fashioned home where hospitality was dispensed with a gracious hand, where morality, industry, gentle manners and religious sentiments were religiously taught. It is not strange then that in surroundings like these the highest type of manhood should be produced. To the wise and beneficent home training were added the best schools to be reached in that section of the State—The Graham High School, Dr. Alexander Wilson's School at Hawfields, and the Hillsboro Military Academy. From this last named, at the tender age of sixteen years, when Governor Vance issued a call for volunteers, he enlisted as a Confederate soldier to fight for a cause he held sacred. His life was then offered to fill the gap left by his beloved and gallant brother Joseph, who fell in battle near the spot where Stonewall Jackson, the immortal, fell. He faced the stern duties of military service with a high courage and bore the cruel hardships of war and want with nerve unflinchingly. War de-

velops and intensifies the finer or the coarser material in man's nature. It was eminently true in the life of Dr. Long, for he came out of it like fine gold that had been refined. He was disciplined to duty and inured to hardships. This probably planted in his mind the desire to become a doctor, for it is known that his people desired him to become a lawyer. Had he chosen the bar doubtless he would have attained the same eminence as his distinguished brothers.

His medical education was obtained at the University of Pennsylvania, from which institution he was graduated in 1874. This was then, and is yet, a justly famed college requiring from its students high standards of excellence. A happy custom of that day prevailed in Philadelphia between the students of the Jefferson Medical College and the University of Pennsylvania (the institutions being only two blocks apart) to invite each other to hear the best lecturers in both schools. Thus Dr. Long was permitted to sit at the feet of the masters. Prof. Gross of the Jefferson Medical College, was the greatest writer and teacher of surgery in America. Prof. Agnew of the University, was but little less distinguished. These men had the faculty to stimulate a man to the highest endeavors. With a mind alert, quickly receptive and retentive, George W. Long easily acquired knowledge and tenaciously held on to it. Fortified at home with rigid morality, the city's glamour held no lure for him. His standards were high, his ideals were pure. He was an earnest, persistent student, following with diligence every branch of medicine; his ambition was to gain knowledge that he might be of the highest service to suffering humanity.

He settled after graduation in the town of Graham. Here his worth was soon recognized and appreciated. At once his services were sought. For the entire length of his professional life, he was the foremost doctor of that section. Marion Sims, Ephraim McDowell, and Crawford Long at some time in their lives all lived in small villages and earned worldwide fame. They were not more loved or esteemed by the people with whom they lived than was Dr. Long. Courage, industry, fidelity and tenderness, all combined with skill and knowledge, fixed their confidence in and admiration for him. With heartfelt sympathy he gave up his life to their afflictions. Of all men keenly alive to afflicted humanity, he knew best that maxim of Horace, "*Pallida mors pulsat aequo pede turresque Regum tabernas.*" The prince and the pauper, when overtaken by sickness and pain, looked alike to him. He gave freely and generously of his time and services to the poor. He had no ambition for fame or craving for money. Had he been paid one tithe of his hard earnings he could have lived in affluence and died a rich man. But he had that sweet and all comforting philosophy, "he that

Dr. George W. Long.

is poor and content is rich and rich enough." His advice was eagerly sought by his medical neighbors and highly valued by the profession. He carefully observed the highest ethics of the profession, leaving out all stilts and frills while considering the best welfare of the patient. Modest to a marked degree, but when conscious of right, and aroused, he yielded to no man in defense of the principles or opinions he had espoused. He was ready and forceful in debate, at times ornate and eloquent in speech. He had clearcut ideas and expressed them in clearcut words. He was a constant student of the best medical writers, but at the same time doing a great deal of thinking on his own account. He had thought much and read largely from the best there is in literature. This was forcibly exhibited in his speeches and writings. He often made pilgrimages to his Alma Mater and other centers of medical teaching that he might keep pace with all the advancement in medical science. These pilgrimages were made at financial sacrifices except in the storing up of knowledge from which he could draw at will. For the same high purpose and that he might contribute his share to its uplift early in his professional life he joined the State Medical Society. This was a body of his peers by which he was extended the glad hand of welcome. The Medical Society represented the best element of the profession—its very aristocracy. It was the trying-out grounds. The unfit were not admitted to its leaderships or its honors. Here Dr. Long's worth was recognized. Friendships of the warmest kind were formed and lasted unbroken save by his untimely end. His friends in the Medical Society were numbered by its entire membership. No member could be more beloved. Honors unsought were gladly bestowed upon him. He was a constant attendant upon the meetings and annually served upon the most important committees. He gave always the closest attention to every detail of matters coming before him, so that the greatest confidence was placed in his fidelity and judgment. He was elected as a member of the sixth board of Medical Examiners of the State. For six years he served upon this board, and was the examiner on the practice of medicine. His signal services to the State and profession were marked. He won the lasting esteem and admiration of his fellow-members. His gentle courtesy, patience and fairness, with his love of justice endeared him to them. I am proud to have been of that fortunate number. His ready sympathy for the embarrassed applicant for license to practice medicine was the subject of constant remark. It grieved him sorely to be forced to decline an applicant and often required the combined arguments of the other members to convince him that he should not yield to his sympathy. It was truly pathetic to see him balancing his sympathy with his duty. He was

like old Javert wrestling between duty and gratitude. In the enforced absence of any member of the board from its session, he was ready to take his place and do double work during the examinations. And he was fully equipped and prepared to examine in each branch of medicine. The rejected candidate carried away no ill feeling against him, for he was forced to the conviction that all had been granted to which he was entitled and that his trial had been not only fair, but often generous. Thus the young doctors were more warmly attached to him than to any other member of the board, and at every yearly reunion he had the happy satisfaction of hearing expressions of kindness and gratitude from them. A few years after his retirement by limitation from the board of examiners, growing in strength and popularity, he was elected unanimously the President of the State Medical Society. This was the highest gift of that body and it was well earned and richly deserved. He brought to this office all the requirements of a splendid presiding officer. His quiet manner, even poise, and quick, impartial judgment added distinguished dignity to the position. His address was scholarly, filled with lofty sentiments and noble ideals—a true reflection of the mind of the man. As a genuine proof of its worth, it has been placed upon the Society's records with its seal of approval. He served the Society upon its board of Censors. This was the court of last resort. He knew how to hold the balance true for the offender and the offended. The most noted trial in its history came within his jurisdiction, involving patience, tact, justice and sound judgment. His ruling was eminently satisfactory to both sides—a very rare solution. He had additional honors in the presidency of his county and district medical societies. Every honor and position came to him unsought, for he knew none of the arts and wiles of the politician, to his eternal glory be it said. For many years he was Superintendent of Health for Alamance county, and he gave to this work every attention and care to protect the health and lives of its people. His services were highly appreciated and his advice followed in all matters relating to mental and physical health. No county ever had a more untiring, zealous, painstaking, capable, and efficient officer. His record stands without a bar. During all his professional days his life was one continuous round of work, usefulness and duty thoroughly and well performed. It is impossible in an address of this nature to recount all of his professional honors and deeds of true worth. His professional walk was a continued benediction to his people. He brought cheer and comfort to every afflicted household, scattering sunshine in the gloomy places and offering rays of hope where only dwelt despair. His presence in the sick room was a blessing. His touch was gentle and his manner soothing to the afflicted.

His every action, thought and speech indicated solicitude for their welfare. Thus was he truly endeared to them.

In religion he was a Presbyterian and for many years a Ruling Elder in that church, living up to its most rigid tenets. His piety was unobtrusive, but thoroughly sincere. It was no trouble for him to walk the strait and narrow way. His faith in the teachings of his lowly Master was simple yet sublime. A devout Christian without cant.

Before his graduation in medicine, he was married to Miss Mary Catherine Walker, the only daughter of Dr. John Adams Walker. From this union there were two children, a son and daughter. This was a happy household, ruled over with love and kindness. To provide for their comfort and pleasure was his keenest delight. He knew no limit to their indulgence within his ability. His children listened with eager delight for his footsteps and ran with joyous shouts for his affectionate embrace. From the great depths of his loving heart for his wife and children came one constant stream of tenderest love. His family ties typified all there was that was beautiful in a happy home. As son, father, husband and brother he was an exemplar of all that was beautiful and tender in life. He was loved beyond the measure of human description. The question in the medical society meetings was often heard—Where is George Long? Why does he not come? His absence was conspicuous and created a void in our midst. At a medical convention once, a little boy was asked by his father, "Well, sir, which one of all these two hundred doctors do you like the best?" He answered promptly, "I like Dr. Long the best." His soft brown eyes, winsome manners and mellow voice had caught the boy's love. His noble countenance led captive many a heart. He had about him a charm that was magnetic and most attractive. He ruled men with love and charity of sentiment. But at times in the discharge of a duty he had a will of case-hardened steel; always a sublime courage, moral and physical, knowing not what fear was, unless of not being able to do what was right. In his nature there was no lodging place for selfishness. Men who knew him best in trials when each one thought of his own self-promotion, always saw his quick self-effacement for his friend, or even some one whom he thought more worthy. His whole life was filled with high resolves and noble impulses, with sacrifices and good deeds. Truly such a life and character must be an inspiration to the profession that he ennobled. If it is true (and who can doubt it?) that "the evil men do lives after them"; it must be equally true that the good, also, lives after them. The influence of such a life and character will leave its impress upon any community. When a good man dies the people should mourn. At his death the expressions of grief were

many and sincere. The tributes in the local as well as the medical press were laudatory and appropriate. The people to whom he had ministered in their suffering, came with beautiful floral gifts to deck his last resting place and mingled their sympathetic tears with his devoted family.

His place has not been filled in the State Medical Society. His confrères, eager to place upon permanent record a token of their love, admiration, and respect for him, offer you, gentlemen of the State Historical Commission, this portrait. The artist has lovingly, reverently and faithfully transferred to the canvas an accurate portrayal of the handsome features of our dead friend. It is eminently fitting that this portrait should adorn these walls beside those of North Carolina's illustrious dead and to be pointed out to future generations as one "whose life was gentle and the elements so mixed in him that nature might stand up and say to all the world—this was a man."

Acceptance by Chief Justice Walter Clark.

On behalf of the State Historical Commission, I have the honor to accept this portrait of one of the most distinguished and of the most beloved members of the great profession of medicine in our State. He was President of the North Carolina Medical Association, Superintendent of Health in his native county of Alamance, and has been identified with many movements in behalf of the best interests of the people of our State. He was a member of one of the oldest and best known families in the State. His father was a prominent citizen of Alamance County and his mother was a niece of Governor Trousdale of Tennessee. Of seven brothers, one, a mere boy, fell in the struggle for Southern Independence and five of the others rose to high distinction in their respective professions. Two of his brothers, Judge B. F. Long of Iredell and Col. Jacob A. Long of Alamance, stand at the front of the legal profession, and Rev. Dr. Daniel A. Long (for 14 years President of Elon College and for 16 years President of Antioch College, Ohio) and Rev. Dr. William S. Long, have achieved eminence as leading divines.

We have had presented today two most admirable portraits of him—that painted by the talented artist, his nephew, and the other a pen sketch by his friend and co-laborer, Dr. Picot; both presenting him in his habit as he lived, and in outlines which all will recognize as just and true.

Dr. Long belonged to a profession which is the oldest of all save one, and whose ministrations have endeared them to the hearts of humanity which so much need their services. As far back as the Siege of Troy, Homer described a great physician, Asklepios—better known to us under

his Latin name, Esculapius—in terms which show that the medical profession had been long in existence. This great physician was king of Thessaly, and in the functions assigned to his two sons by Homer we readily recognize the division already then made of the profession into surgery and medicine.

Even prior to that we read that Joseph committed the body of his father, Jacob, to the physicians to be embalmed that it might be carried back to Canaan, and later the great prophet Jeremiah recognized the importance of the profession when he asked, "Is there no balm in Gilead; is there no physician there?"

In the age of Pericles, Hippocrates was in medicine as splendid a representative of the highest efforts of the Greek intellect as were his contemporaries, the great philosophers, soldiers, orators and writers of that wonderful age. From him and from his great successor in the second century after Christ, Galen, were handed down the writings which to this day are still authority.

It is not yet 150 years since (at Oxford in 1768) Blackstone, the first lecturer on law, resigned because of the refusal to establish a school of law, the first ever proposed in England, but centuries before that already our brethren in the medical profession had schools of high repute in many Universities in Europe for the education of physicians and surgeons. Among the great teachers of medicine was Boerhaave at Leyden, and Montanus at Padua, and many another of enduring fame.

Since then Harvey, who discovered the circulation of the blood, Jenner, the discoverer of vaccination, and others have set the pace for that tremendous reform which in modern times has revolutionized the conditions of life and doubled its average duration. The discoveries of chloroform and ether and other anesthetics have miminized even the horrors of the battlefield, and sanitation and hygiene have rendered life more endurable. The discoveries of Darwin and the establishment of the germ theory of disease have changed our entire conception of vitality. The facts demonstrated by physicians at the cost of their own lives that to the bite of insects was due the scourge of yellow fever, of malaria, the bubonic plague, and other diseases, have made possible the development of the Tropics, the execution of that greatest work of man, the Panama Canal, and have made whole countries habitable for the race of man.

To this profession we owe the extermination of this Asiatic scourge at San Francisco and of yellow fever in Cuba, New Orleans and Galveston; the steady decrease in tuberculosis, and the destruction of other

dreaded diseases. There is not time to speak of the countless benefits bestowed on mankind by this profession and the incalculable debt that humanity owes to it.

The profession of medicine is by far the most progressive of all callings. In the last thirty years it has revolutionized the conditions of living. The new science of sanitation, in the hands of physicians, and hygiene have rescued more lives than the malignant ingenuity for evil developed in the great conflict in Europe has destroyed. In our Civil War, fifty years ago, twice as many soldiers died of wounds and five times as many of hardship and disease as were killed in battle. Today, owing to sanitation and antisepsis and improvements in surgery, comparatively few die of wounds and less than 2 per cent of disease.

The wealth won by millionaires and misers in their mad chase for the dollar will be dissipated by their spendthrift heirs; the fame of soldiers will be forgotten; the places scuffled for by politicians will soon be filled by their successors, and all thought and memory of them will disappear "like fleecy clouds on the infinite azure of the past." But if in another sphere of existence, or among the succeeding generations of men, there shall abide any recollection of this life, there shall never pass away the memory of the self-sacrificing profession which relieves us from pain, which has extended the duration of life and made existence more enduring and endurable.

Cæsar and Napoleon gave wounds and death to their devotees, but the Supreme Man, He who was termed the Good Physician, who alleviated our sorrows and ministered to physical as well as mental troubles, lives in an ever broadening circle of influence and love through the ages. To this profession, which follows His example in benefiting mankind and relieving its sorrows and its pain, the world owes the greatest debt.

On this occasion when we meet to do honor to a distinguished and beloved member of that great profession, whose personal traits have been placed before us by the eloquent speaker who has presented this portrait, it is not inappropriate to acknowledge even in this imperfect way the indebtedness of mankind to the profession which he honored and which honored him.

Doctor Long well earned the title bestowed on the evangelist, Luke, of "the beloved physician." But he was more, for he was one of the truest of friends and one of the noblest of men.

REPORT

OF THE

BOARD OF MEDICAL EXAMINERS

OF THE

STATE OF NORTH CAROLINA

ANNUAL SESSION

RALEIGH, JUNE 18-22, 1917

There were:

108 registrations for examinations.
10 failed to pass the examinations.
65 passed successful examinations.
21 obtained licenses by reciprocity.
27 students took examinations on first two years work.
1 withdrew.

Highest average, J. R. Latham, 93.
Next highest average, F. C. Hodges, 92.4.

H. A. Royster,
Secretary.

Raleigh, N. C.

REQUIREMENTS FOR ENTRANCE TO EXAMINATION FOR MEDICAL LICENSE.

An applicant for license to practice medicine in North Carolina must appear before the Board of Medical Examiners in regular session and present a certificate of good moral character, attested by two persons known to the board, a diploma from a medical college in good standing, or a license from some other State, and must deposit $15 with the secretary of the board. He will then be examined upon the following branches of medicine: Anatomy, Physiology, Surgery, Pathology, Hygiene, Chemistry, Pharmacology, Gynecology, Materia Medica, Therapeutics, Obstetrics, Diseases of Children, and the Practice of Medicine. The examinations are written, oral, and practical combined.

He must make an average of 80 per cent upon all the branches, and he must not fall below 35 per cent upon any one branch.

Applicants who are not *bona fide* citizens of North Carolina must satisfy the board that they have an academic education equal to the entrance requirements of the University of North Carolina, and after 1917 this will be required of all persons appearing before the board.

TEMPORARY LICENSE.

An applicant for temporary license must appear before two members of the Board of Medical Examiners and present a certificate of good moral character, a diploma from a medical college in good standing, and must pay a fee of $5. He must then stand a satisfactory examination.

A temporary license continues in force only until the next regular meeting of the board, and is granted but once to the same applicant.

Applicants for temporary license may call upon any two members of the board at their homes at any time in the year, selecting the two most accessible.

REQUIREMENTS FOR RECIPROCITY.

1. Reciprocity is granted only to men of known reputation and ability. Unless the applicant has had five years experience in successful practice in the State in which he then resides, or two years of successful hospital experience, or has filled positions of medical trust accounted by the board as the equal of these, and unless he is a graduate of a high-class medical college and possesses a good preliminary education, his application will not be considered. The burden of proof is upon the applicant to show what his attainments are.

2. He must not have failed before the North Carolina Board.

3. He must present himself in person before the North Carolina Board at its regular session. To this rule no exception is ever made. He must then pay a fee of $50.

4. He must fill out a blank application in regard to his moral character, educational attainments, identity, etc., and file the same with the secretary of the board at least thirty days before the meeting of the board. (Blank applications may be obtained from the secretary upon request.)

5. Reciprocity will be granted to physicians who have been admitted by examination to the United States Public Health Service, the United States Navy or Army, and who have been continuously in service, or have received honorable discharge, and have been in continuous successful practice to the date of application.

In regard to the matter of reciprocity, the State of North Carolina regards the qualifications of the applicant rather than the State from which he comes. In every case it is necessary that the applicant appear in person before the Board of Medical Examiners in regular session, and by this personal interview convince the members of the board that he is a man of intelligence, sobriety, and high personal character. For this reason it is impossible to make a definite promise of reciprocity to any man until he has appeared before the board.

The applicant must also produce papers showing that he has a good preliminary education, is a graduate of a high-grade medical college, and that he has been successful in his medical undertakings since graduation. In addition to the application blank, the applicant must furnish abundant evidence that every statement contained therein is true. That is, when hospital experience is claimed, it must be accompanied by letters from the proper authorities, showing the time of such service, and certifying that this service was satisfactory. The same requirements are made in regard to other positions of medical trust.

The North Carolina Board reserves the privilege of rejecting any applicant for reciprocity without question or comment on the part of the applicant.

EXAMINATION PAPERS

ANATOMY.

J. F. Highsmith, M.D.

1. Describe the upper extremity of the tibia, its blood supply, and important muscles attached to it.
2. Describe the elbow joint. Name the ligaments and give their attachments.
3. Describe Poupart's ligament, naming its anatomic relations and uses as a surgical guide.
4. (*a*) Locate and describe the rectum. (*b*) What structures can be palpated through the rectum in the two sexes?
5. Give origin and description of the musculospiral nerve.
6. Mention the branches of the internal iliac artery.
7. Name the ductless glands, and minutely describe any one of them.
8. (*a*) Discuss the anatomy of the liver. (*b*) Why pain in the region of the right shoulder in disease of the liver and gall bladder?
9. Describe the male urethra and give its divisions.
10. Beneath what point of the anterior chest surface are the cardiac valves?

CHEMISTRY AND HYGIENE.

Isaac M. Taylor, M.D.

1. What is synthesis? Analysis? An element? Valence?
2. Name a synthetic organic chemical compound used in medicine, with its formula. Give the symbol of five elements with indicated valence and a chemical compound of each.
3. What is calcium sulphate? Its formula? and what peculiar property renders it useful in surgery?
4. What chemical tests would you apply to determine the purity of drinking water?
5. What is the chemical process in testing diabetic urine with Fehling's solution, and what is the precipitate? In making the yeast test, from what product do you determine the amount of sugar present?
6. Give a test for the presence of each of the following urinary constituents: bile, blood, acetone, albumen.
7. To what is the color of blood due, and in what form does it occur?
8. What chemical function does pepsin perform in digestion? What chemical function does pancreatic fluid perform?
9. Discuss the prevention of the further spread of typhoid fever in a rural household when a case occurs, and the protection of the neighborhood.
10. In a health survey of a school, what physical defects should we look for in a backward child.
11. Discuss the cause and prevention of scurvy aboard ship and among troops.

PRACTICE OF MEDICINE.

John G. Blount, M.D.

1. State the essential differences between (*a*) septicemia, (*b*) pyemia, (*c*) sapremia.
2. What is a petechial eruption? Name several diseases with a petechial rash as an important diagnostic symptom.

3. Differentiate between (*a*) tetanus, (*b*) strychnia poisoning, (*c*) cerebrospinal meningitis. What is the immunizing dose of tetanus antitoxin? What is the curative dose?
4. Symptomatology of uncinariasis. Give treatment and mode of administration.
5. Name six pathological lesions that may cause ascites.
6. Symptomatology and treatment of acute poliomyelitis.
7. Upon what prominent symptoms would you rely in diagnosing aneurysm of the descending aorta?
8. Describe von Graefe's and Stellwag's signs. Upon the presence of these and what other symptoms could you diagnose the disease they accompany?
9. What symptoms follow lesion of the third nerve?
10. Name the different types of epilepsy. Describe an attack in each type.
11. Name the different varieties of pemiphigus and outline briefly the treatment.
12. Give a brief description of paretic dementia.

SURGERY.

H. A. Royster, M.D.

1. Discuss the surgical importance of acidosis.
2. Name any drug used as a local anesthetic; give proper percentage and technique.
3. (*a*) Give the clinical differences between sarcoma and carcinoma. (*b*) Name the signs of inflammation and four ways in which it may terminate.
4. Name the varieties, the causes, and the signs of fractures. How would you treat a fractured rib?
5. Give the physical signs of popliteal aneurysm and the best method of treatment.
6. Mention and distinguish briefly the conditions giving rise to acute abdominal pain.
7. Describe the pathology and management of tuberculosis of the knee joint.
8. Define laminectomy, esophagotomy, torticollis, gastrectomy, pyonephrosis, acromegaly, teratoma, elephantiasis, pseudoarthrosis, cystoscopy.
9. Give the pathology and symptoms of hypertrophy of the prostate gland.
10. (*a*) Give the indications for enucleation of the eye. (*b*) What are the symptoms of acute empyema of the maxillary sinus?

GYNECOLOGY, OBSTETRICS, AND PEDIATRICS.

E. G. Moore, M.D.

Obstetrics.

1. Describe briefly the anatomy of the (true) female pelvis, and give the measurements of its principal diameters.
2. (*a*) What is the mechanism of labor? (*b*) Describe the normal mechanism of labor in a head presentation, L. O. A.
3. Give the clinical history and diagnosis of ectopic pregnancy.
4. Give the clinical history, diagnosis, and treatment of a case of toxemia of pregnancy occurring in the last month.

5. What prophylactic measures would you observe in the management of the third stage of labor to prevent a post-partum hemorrhage? (*a*) Mention the causes, and outline the treatment of post-partum hemorrhage. (*b*) Outline the treatment of eclampsia occurring after delivery.

Gynecology.

1. Define dysmenorrhea. Mention its causes, and outline its treatment.
2. Mention three varieties of solid ovarian tumors, and give the different diagnosis of each variety.
3. What is trachelorrhaphy, and what are its indications?

Pediatrics.

1. (*a*) What are the elements of food value in the composition of milk? (*b*) Give the percentage in human milk. (*c*) Give the percentage in cow's milk. (*d*) State the number of milk teeth, and give the average age at which primary dentition begins and is completed.
2. Give the differential diagnosis between scarlatina and measles, and outline the treatment of each.

PHYSIOLOGY, PATHOLOGY, AND BACTERIOLOGY.

M. L. Stevens, M.D.

1. Define Hemoloysis; Indican; Hemoglobinuria; Microtome; Aerobic.
2. If both kidneys are removed or are rendered functionless, what symptoms develop?
3. What are the functions of the liver?
4. What is pain, and what service, if any, does it perform?
5. Define Infiltration and Degeneration, clearly differentiating the one from the other.
6. Tabulate briefly the blood changes found in pernicious anæmia, indicating gross appearance, hemoglobin, number of red cells, size and form of red cells, nucleated red cells, number of white cells, lymphocytes and hyaline cells, myelocytes.
7. (*a*) Give cause or causes of acute lobar pneumonia. (*b*) Describe the local lesion (gross pathology). (*c*) State briefly the effect of the disease on the normal function of the heart.
8. Describe proper method of obtaining and preparing specimens to be sent to laboratory for examinations: (*a*) Blood in suspected malaria; (*b*) blood in suspected typhoid; (*c*) blood in suspected syphilis; (*d*) throat specimen in suspected diphtheria; (*e*) sputum in suspected tuberculosis.
9. Name (*a*) four pyogenic cocci; (*b*) three pathogenic diplococci; (*c*) four pathogenic bacilli; (*d*) one pathogenic spirillum.
10. What requirements must be fulfilled in order to prove that a given organism is the specific cause of a disease?

Note.—A laboratory or oral examination is also required.

PHARMACOLOGY, MATERIA MEDICA, AND THERAPEUTICS.

JOHN Q. MYERS, M.D.

1. Give origin and dose: (*a*) Acetanilid, (*b*) Veronal, (*c*) Aspirin, (*d*) Emetin, (*e*) Apomorphine.
2. Describe and give an example of each of the following incompatibilities: (*a*) Chemical, (*b*) Physical, (*c*) Physiological, (*d*) Pharmacological.
3. Name the physiological antidote for each of the following: (*a*) Strychnine, (*b*) Morphine, (*c*) Phosphorus, (*d*) Arsenic, (*e*) Iodine.
4. Define and give example of the following: (*a*) Alkaloid, (*b*) Glucoside, (*c*) Solution, (*d*) Infusion, (*e*) Emulsion.
5. Convert the apothecaries measure into metric fluid measure.
6. What principles would you follow in the diet of a case of diabetes mellitus with persistent glycosuria?
7. How would you increase water elimination in edema?
8. How would you treat collapse due to vaso-motor failure?
9. How would you treat collapse due to severe hemorrhage?
10. Write five prescriptions of your own selection and name the disease for which each may be indicated.

GRANTED LICENSE BY EXAMINATION, RALEIGH.

Name	Address	Medical College	Year	Preliminary
Alexander, Mary Janet	Huntersville	Woman's Medical College	1917	Four years college.
Atkins, Benjamin T	Gold Hill	Medical College of State of S. C		Two years collegiate, Elon College, N. C.
Austin, DeWitt R	Charlotte	Jefferson		High school and B.S. from Univ. N. C.
Barrett, Harvey P	Charlotte	Univ. of Louisville	1908	A.B., Centre Coll. of Central Univ., Kentucky.
Benthal, Rack F	Ahoskie	Medical College of Virginia	1917	Oak Ridge Institute.
Boyles, Memory F	Henry, R. F. D. 3	N. C. Med. Coll.; Med. Coll. Va	1917	High School.
Brockman, Harry L	Greensboro	Univ. of Pennsylvania	1917	Greensboro High School and Univ. of N. C.
Brooks, Harry E	Sunbury	Medical College of Virginia		Sunbury High School, A.&M. Coll., Trinity Coll.
Bullard, John B	Stedman	N. C. Med. Coll. by Med. Coll. of Va		High School, Gregory Normal (Wilm., N. C.).
Burnett, Foster F	Wilmington	Howard University	1917	B.S., A. & M., Greensboro, and Howard Univ.
Carter, Thomas L	Hobbsville	Medical College of Virginia	1917	Hobbsville Graded School and Wake F. Coll.
Castelloe, Cola	Aulander	Univ. of Pennsylvania	1917	A.B. and M.A., Wake Forest College.
Clark, DeWitt D	Clarkton	Medical College of Virginia		B.S. of Davidson College.
Cox, Russell M	Washington	Univ. of Pennsylvania	1917	Washington High School, B.S. Univ of N. C.
Craven, Thomas	Charlotte	Jefferson Medical College	1917	Univ. of N. C.
Crouse, William F	Crouse	N. C. Med. Coll. by Med. Coll. of Va		Lenoir College, Hickory.
Gainey, John W	Parkton	Jefferson Medical College	1917	Hope Mills High School, Univ. N. C., Jefferson.
Gauge, Arthur E	Forbes	N. C. Med. Coll. by Med. Coll. of Va		High School, Mitchell Collegiate Institute.
Gibson, Levi A	China Grove	Howard University	1915	A.B., Livingstone College, Salisbury.
Graybeal, Avery B	Clifton	N. C. Medical College	1917	High School.
Griffin, Mark A	Wingate	Jefferson Medical College		Wingate High School and Univ. of N. C.
Hayes, Albert H	Marietta	Atlanta Medical College	1917	Whitsett Institute.
Hemminway, Jasper D	Linden	N. C. Med. Coll. (Med. Coll. of Va.)	1915	High School and College.
Hensley, Charles A	Relief	Jefferson Medical College		Yancey Coll. Inst., Burnsville; Wake F. Coll. B.S.
Hackett, Lester E	Pleasant Garden	N. C. Med. Coll. ((Med. Coll. of Va.)	1917	Providence Acad.; Charlotte Univ. School.
Hodges, Frank C	Greenville	Medical College of Virginia	1917	High School; Coll. Biology, Physics and Chem.
Holt, John W	Asheville	Meharry Medical College	1917	Morristown Norm. Coll.; Livingstone Coll. A.B.
Jones, Leonidas L	Kenansville	Univ. of Pennsylvania	1917	Wake Forest College and Univ. of N. C.
Justice, Zora K	Davidson	N. C. Medical College	1903	Judson College.
Keaton, James M	Washington, D. C	Howard Medical College	1917	Two in years college.
Klutz, Austin F	Maiden	Jefferson Medical College	1917	B.A., Washington and Lee Univ.
Lane, Willard M	Washington, D. C	Howard Medical College	1916	Lincoln Univ.; Oberlin College.
Latham, Joseph R	Belhaven	Jefferson Medical College	1917	Univ. of N. C.

GRANTED LICENSE BY EXAMINATION—CONTINUED.

Mame	Address	Medical College	Year	Preliminary
Long, David T.	Hurdle Mills	Atlanta Medical College	1917	Whitsett Institute.
McCorkle, Matthew L.	Newton	Jefferson Medical College	1917	Univ. of N. C., A.B., 1913.
McGowan, Claudius	Greenville, R. F. D. 5	Medical College of Virginia		Ayden Seminary; Univ. of N. C.
McNairy, Margaret C.	Lenoir	Woman's Med. Coll. of Pennsylvania	1917	Catawba College, A.B.
Melchor, Warren C.	Fayetteville	Meharry Medical College	1917	Shaw University; St. Augustine School.
Nicholson, Neill G., Jr.	Powellton	N. C. Med. Coll. by Med. Coll. of Va.		Elise High School; Davidson College.
Nisbet, Douglas H.	Charlotte	Harvard	1917	Charlotte Univ. School; S.B., Davidson Coll.
Outland, Charles L.	Woodland	Medical College of Virginia	1917	Olney High, George, N.C.; Westtown Sch., Pa.
Parker, James R.	Fair Bluff	N. C. Medical College	1917	High School.
Parrott, Mercer C.	Kinston	Tulane	1917	A. and M.; Univ. of N. C.
Peery, Vance P.	Kinston	Medical College of Virginia	1916	Emory and Henry College.
Pittman, Joel H.	Battleboro, R. 1	Meharry Medical College	1917	Shaw University.
Rawls, John L.	Gatesville	Jefferson Medical College	1917	Trinity College; Univ. of N. C.
Singletary, George C.	Clarkton	University of Pennsylvania		Clarkton High School; A.B., Univ. of N. C.
Smith, Thomas A.	Midland	N. C. Medical College	1917	Three years in college.
Smith, Walter P.	Midland	N. C. Med. Coll., by Med. Coll. of Va.	1917	L. M. C., Tenn.
Sossomon, John C.	Midland	N. C. Med. Coll., Med. Coll. of Va.	1915	High School.
Stokes, Percy B.	Ruffin	Medical College of Virginia	1917	Univ. of N. C. and Reidsville Seminary.
Suitor, Wester G.	Garysburg	Medical College of Virginia	1917	A.B. Trinity College, Durham.
Sumrell, Guy H.	South Boston, Va.	Medical College of Virginia	1915	Whitsett Institute; Wake Forest College.
Thigpen, Frank L.	Tarboro	Jefferson Medical College	1917	B.S. Univ. of N. C.
Thigpen, Harry G.	Tarboro	Jefferson Medical College	1917	Warrenton High School; B.S. Univ. of N. C.
Thomas, William C.	Raeford	Medical College of Virginia	1917	Buie's Creek Academy and Broadway Normal.
Vann, Junius R.	Fayetteville	Jefferson Medical College		Wake Forest College.
VanPoole, Carl M., Jr.	Salisbury	University of Maryland	1916	Crescent Academy; Mt. Pleasant Coll. Inst.
West, Clifton F.	Dover	University of Pennsylvania	1917	Dover High School; Univ. of N. C.
Whitehurst, Elijah B.	Beaufort	Medical College of Virginia		B.S. and M.A. Wake Forest College.
Whitley, Lloyd L.	Crawford, Ga.	Atlanta Medical College	1915	Monroe High School.
Williams, Owen B.	Fayetteville	Meharry Medical College		Fayetteville State Normal School; Shaw Univ.
Williams, William C.	Apex, R. 4		1917	High School.
Wolfe, Hugh C.	Greensboro	Medical College of Virginia	1917	Greensboro High School.
Young, Goldman M.	Farner, Tenn.	Lincoln Mem. Univ.; Univ. of Tenn.	1916	Murphy; State High School.

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Name	Address
Aiken, G. A.	Wake Forest.
Andrews, C. R.	Asheville.
Barber, Y. M.	Winton.
Bell, E. M.	Greenville, Tenn.
Bishop, W. A.	Alcoa, Tenn.
Black, W. A.	West Asheville.
Bradley, J. C.	City Point, Va.
Bown, Herbert H.	Asheville.
Chauvin, H. E.	Brentwood, N. Y.
Cocke, G. W.	Mooresville.
Cunningham, I. S.	Winston-Salem.
Fitzgerald, J. O.	Pelham.
Jones, U. G.	West Jefferson.
Munro, Catherine N.	York, S. C.
Shields, J. A. P.	Cresmont.
Shipp, William T.	Newton.
Smith, L. J.	Burlington.
Toole, A. F.	Asheville.
Walker, L. D.	High Point.
Wooding, C. E.	Winston-Salem.
Young, Charles E.	Greensboro.

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May, Monroe J.	Lovett, Fla.

TWO-YEAR STUDENTS PASSED ON FIRST TWO YEARS WORK.

Name	Address	Medical College
Bailey, K. H.	Wakefield	University of North Carolina.
Billings, G. M.	West Raleigh	Wake Forest College.
Bonner, J. B.	Bonnerton	University of North Carolina.
Booth, J. H. R.	Lemon Springs	Wake Forest College.
Brinkley, H. M.	Elm City	University of North Carolina.
Bruner, J. S.	Roseboro	Wake Forest College.
DeLaney, C. O.	Matthews	University of North Carolina.
Dixon, W. H.	Rocky Mount	University of North Carolina.
Foster, H. H.	Branchville, Va.	Wake Forest College.
Harbison, J. W.	Morganton, R. 1	University of North Carolina.
Herman, E. C.	Conover	Jefferson Medical College, Phila.
McMillan, E. G.	Laurinburg	Wake Forest College.
Marsh, F. B.	Salisbury	University of North Carolina.
Price, J. V.	Madison	University of North Carolina.
Stanford, W. R.	Teer	University of North Carolina.
Sugg, E. S.	Chapel Hill, R. 3	University of North Carolina.
Watson, T. M.	Maxton	Wake Forest College.
Woody, W. S.	Crewe, Va.	Wake Forest College.

ALPHABETICAL LIST OF MEMBERS OF MEDICAL SOCIETY WITH POST OFFICE ADDRESS

Those marked (*) were present at the annual convention at Asheville

Name.	*Address.*
*Abel, J. F.	Waynesville
Abernethy, C. O.	Raleigh
*Abernethy, E. A.	Chapel Hill
Abernathy, H. N.	Denver
*Absher, D. C.	Henderson
Achorn, J. W.	Pine Bluff
Adams, C. A.	Durham
Adams, C. E.	Gastonia
*Adams, J. L.	Asheville
*Adams, M. R. (Hon.)	Statesville
*Adams, N. B.	Murphy
Adams, R. K.	Raleigh
Aiken, Alford	Wake Forest
Alexander, Annie L.	Charlotte
Alexander, J. R.	Charlotte
*Allan, William	Charlotte
Allen, B. G.	Henderson
Allen, J. A.	New London
*Allen, R. L.	Waynesville
Allgood, R. A.	Fayetteville
*Allhand, J. M.	Cliffside
Ambler, C. P.	Asheville
Anders, McT. G.	Gastonia
Anderson, Abel	Denton
*Anderson, Albert	Raleigh
Anderson, C. A.	Burlington
Anderson, J. A.	McAdenville
Anderson, J. G.	Asheville
Anderson, J. N.	Albemarle
Anderson, J. R.	Morganton
*Anderson, T. E. (Hon.)	Statesville
Anderson, W. H.	Wilson
Anderson, W. S.	Wilson
Andrews, R. M.	Union Mills, R. F. D.
Andrews, V. L.	Mount Gilead
Anthony, J. E.	Kings Mountain
*Archer, I. J.	Black Mountain
Armstrong, C. W.	Troy
Arnold, L. J.	Lillington
Asbury, F. E. (Hon.)	Worthville
Ashby, E. C.	Mount Airy
Ashby, T. B.	Mount Airy
Ashcraft, J. E.	Monroe
Ashe, J. R.	Charlotte
*Ashworth, B. L.	Marion
Ashworth, W. C.	Greensboro
Atkins, M. T.	Durham
Attmore, G. S. (Hon.)	Stonewall
Austin, F. DeC.	Charlotte
Austin, J. A.	Charlotte
Austin, J. W.	High Point
Averitt, K. G.	Cedar Creek
Aydlett, H. T.	Elizabeth City
Aydlette, J. P.	Earls
Baird, C. A.	Mount Airy
Baird, J. H.	Mars Hill
Baird, J. W.	Mars Hill
Baker, J. M. (Hon.)	Tarboro
*Baker, W. E.	Arden
Ball, M. W.	Newport
*Bandy, W. G.	Maiden
*Banner, C. W.	Greensboro
Barbee, G. S.	Zebulon
Barefoot, J. J.	Graham
Barefoot, M. L.	Dunn
Barnes, B. F.	Elm City
Basnight, T. G.	Stokes
Battle, G. C.	Asheville
Battle, I. P.	Rocky Mount
Battle, J. P.	Nashville
*Battle, J. T. J.	Greensboro
Battle, K. P. (Hon.)	Raleigh
*Battle, S. W. (Hon.)	Asheville
Baynes, R. H.	Hurdle Mills
Baynes, R. S.	Hurdle Mills
*Beall, L. G.	Greensboro
Beall, W. P.	Greensboro
*Beam, R. S.	Lumberton
Beard, G. C.	Kerr, R. F. D.
Beasley, E. B.	Fountain
*Beckwith, R. P.	Rosemary
*Bell, A. E.	Mooresville
Bell, C. W.	Raleigh

Name.	*Address.*
Bell, G. M.	Wakefield
Bellamy, W. J. H. (Hon.)	Wilmington
Belton, J. F.	Winston-Salem
Bennett, A. McD.	Bryson City
*Bennett, P. R.	Bryson City
Best, H. B.	Wilson
Biggs, M. H.	Rutherfordton
Bitting, N. D.	Durham
Bizzell, T. M.	Goldsboro
Blackburn, T. C.	Hickory
Blair, A. McN.	Carthage
Blair, M. P.	Marshville
Blalock, — —	Charlotte
Blalock, N. M.	McCullers
Blevins, Manley	Jefferson
*Blount, J. G.	Washington
Boddie, N. P. (Hon.)	Durham
Boice, E. S.	Rocky Mount
Bolles, C. P., Jr	Wilmington
Bolton, Mahlon	Rich Square
Bonner, H. M.	New Bern
*Bonner, K. P. B.	Morehead City
*Booker, L. S.	Durham
Boone, W. H.	Durham
Booth, T. L.	Oxford
Bostic, W. C.	Forest City
Bowdoin, G. E.	Wilmington
*Bowers, M. A.	Thomasville
Bowling, E. H.	Durham
Bowman, H. P.	Greensboro
Boyden, W. C.	China Grove
Boyette, E. C.	Charlotte
Boyles, A. C.	Durham
Boyles, J. H.	Greensboro
Braddy, W. H.	Greensboro
*Bradsher, W. A.	Roxboro
Brandon, W. D. R.	Kannapolis
*Braswell, J. C.	Rocky Mount
Brawley, M. H.	Salisbury
Brawley, R. V.	Salisbury
*Briggs, H. H.	Asheville
Brittle, P. C.	Conway
*Brooks, B. U.	Durham
*Brookshire, H. G.	Leicester
Brown, Geo. A.	Mount Ulla
Brown, G. W.	Raeford
Brown, J. P.	Fairmont
*Brown, J. S.	Hendersonville
*Brownson, W. S.	Asheville
Bryan, L. D.	Sneed's Ferry
*Bryson, D. R.	Bryson City
Bryson, E. J.	Fontana
Buchanan, C. L.	Plum Tree
Buchanan, E. J.	Lexington
Buckner, J. M.	Swannanoa
*Buckner, R. G.	Asheville
Buffalo, J. S.	Garner
Buie, R. M.	Williamston, R. F. D.
Bullard, G. F.	Elizabethtown
Bullitt, J. B.	Chapel Hill
Bullock, D. W. (Hon.)	Wilmington
Bullock, T. C.	Autryville
Bullock, W. B.	Hester
Bullock, W. J.	Belhaven
Bulluck, Ernest S.	Wilmington
Bunn, J. J.	Mount Pleasant
Burbage, T. I.	Como
Burleson, L. N.	Concord, R. F. D.
Burleson, W. B.	Plum Tree
*Burnett, I. E.	Mars Hill
Burns, A. B.	Cleveland
*Burns, W. M.	Goldston
*Burrus, J. T.	High Point
Burt, B. W.	New Hill
Burt, S. P.	Louisburg
Busby, J. G.	Spencer
Butler, B. F.	Clinton
*Byerly, A. B.	Cooleemee
Bynum, John	Winston-Salem
Bynum, W. H.	Germanton
Caldwell, D. G. (Hon.)	Concord
Caldwell, J. M.	Gastonia
Caldwell, W. H.	Snowden
*Calloway, A. W.	Asheville
*Campbell, A. C.	Raleigh
Campbell, J. I.	Norwood
Campbell, J. R.	Newton
*Candler, C. Z.	Sylva
Cannady, N. B.	Laurinburg
Cannady, S. H.	Oxford
*Carpenter, F. A.	Statesville
Carr, R. L.	Rose Hill
Carroll, Delia Dixon	Raleigh
*Carroll, J. L.	Hookerton
Carroll, J. W.	Wallace
Carstarphen, W. T.	Wake Forest
Carter, G. H.	Kings Creek
Carter, H. W.	Washington
Cathell, E. J.	Lexington

Name.	*Address.*
Caton, G. A.	New Bern
Cauble, H. H.	Kannapolis
Causey, P. P.	Wilmington
Caveness, Z. M.	Raleigh
Champion, C. O.	Mooresboro
Chaney, T. M.	Winston-Salem
Chapin, H. T.	Pittsboro
*Cheatham, Arch	Durham
Cheek, C. E.	Fuquay Springs
*Cheeseborough, T. P.	Asheville
*Choate, G. W.	Rockwell
Clark, E. S.	Clarkton
Clark, G. L.	Clarkton
Clemenger, F. J.	Asheville
*Cliff, B. F.	Flat Rock
Clinton, R. S.	Rocky Mount
Clodfelter, C. M.	Lexington
Cobb, W. H.	Goldsboro
*Cocke, C. H.	Asheville
Cocke, E. R.	Asheville
*Cocke, J. E.	Asheville
Codington, H. A.	Wilmington
Coe, S. S.	High Point
*Coffey, L. H.	Lenoir
*Colby, C. DeW.	Asheville
Cole, W. F.	Greensboro
Coleman, G. S.	Kenly
Coltrane, Wallace E.	Dunn
Colvard, J. W.	Jefferson
Cooke, Q. H.	Woodland
*Cooper, G. M.	Raleigh
Cooper, J. A.	Almond
Coppage, T. O.	Nashville
Coppedge, N. P.	Ellerbe
*Corpening, O. J.	Granite Falls
Costello, M. J.	Asheville
*Cotton, C. E.	Black Mountain
Cox, B. F.	Palmerville
Cox, B. W. P.	Goldsboro
Cox, E. L.	Jacksonville
Cox, G. S.	Tabor
Cox, Thos. A.	Hertford
Cozart, W. S.	Holly Springs
Craig, S. D.	Winston-Salem
Cranford, J. F.	Hendersonville
Cranmer, J. B.	Wilmington
Craven, F. C.	Ramseur
Craven, W. W.	Huntersville
*Crawford, J. M.	Asheville
Crews, N. H.	Henderson
Crocker, W. D.	Warsaw
Cromartie, R. S.	Garland
Croom, G. A.	Wilmington
*Crowell, A. J.	Charlotte
Crowell, L. A.	Lincolnton
Crowell, S. M.	Charlotte
Crowson, S. T.	Taylorsville
Crumpler, Paul	Clinton
Currie, E. W.	Salisbury
Cutchin, J. H.	Whitakers
*Daligny, Charles	Troy
Dalton, D. N.	Winston-Salem
Dalton, W. N.	Winston-Salem
Dameron, E. L.	Star
Daniel, N. C.	Oxford
*Daniels, O. C.	Goldsboro
Daniels, R. L.	Swansboro
*Davidson, J. E. S.	Charlotte
Davis, J. J.	Beaufort
*Davis, J. W.	Statesville
Davis, R. B.	Weeksville
*Davis, T. W.	Winston-Salem
Davis, W. W.	Belmont
Dawson, W. W.	Grifton
Deans, A. W.	Battleboro
Dees, D. A.	Bayboro
Dees, R. E.	Greensboro
Dees, R. O.	Greensboro
DeHart, James	Bryson City
*Denchfield, A. L.	Asheville
Denny, W. W. (Hon.)	Pink Hill
Denson, H. A.	Bennett
Dick, J. V.	Gibsonville
Dickinson, E. T.	Wilson
Dickson, A. P.	Raeford
Divers, G. T.	Mount Airy
Dixon, D. R.	Rocky Mount
*Dixon, G. E.	Hendersonville
*Dixon, G. G.	Ayden
Dixon, W. H.	Ayden
Dodson, H. H. (Hon.)	Greensboro
Dowdy, G. E.	Winston-Salem
Duffy, Leinster	New Bern
Duffy, R. N.	New Bern
Duguid, J. A.	Vanceboro

Name.	*Address.*
Duncan, J. E.	North Wilkesboro
Dunlap, L. V.	Albemarle
*Dunn, W. L.	Asheville
Eagles, C. S.	Saratoga
Earnhardt, J. M.	Mount Pleasant
Easley, P. S.	Statesville
Eason, Oscar	Princeton
*Eckel, O. F.	Asheville
Eddleman, H. M.	Gastonia
*Edgerton, J. L.	Hendersonville
Edgerton, M. T., Jr	Greenville
Edwards, A. D.	Winston-Salem
*Edwards, B. O.	Landis
Edwards, G. C.	Hookerton
Edwards, J. D.	Siler City
*Elias, L. W.	Asheville
Ellen, C. R.	Nathan's Creek
Ellington, A. J.	Raleigh
Elliott, W. F.	Lincolnton
Ellis, R. C.	Shelby
*English, E. S.	Brevard
Erwin, E. W.	Laurinburg
Eubanks, J. B.	Monroe
Evans, L. B.	Windsor
Everett, A. C.	Rockingham
*Faison, I. W. (Hon.)	Charlotte
Faison, W. W. (Hon.)	Goldsboro
*Faison, Yates	Charlotte
Farrior, J. W.	Kenansville
Farthing, L. E.	Pittsboro
Fassett, B. W.	Durham
Faucette, T. S.	Burlington
Fearing, Isaiah	Elizabeth City
*Fearing, Zenas	Elizabeth City
Fearington, J. P.	Winston-Salem
Felts, R. L.	Durham
Ferebee, C. G.	South Mills
Ferebee, E. B.	Raleigh
Ferrell, J. A., 61 Broadway, New York	
Finch, O. E.	Apex
*Flack, R. E.	Asheville
*Fleming, M. J.	Hamilton
*Fletcher, M. H. (Hon.)	Asheville
Flippin, J. M.	Mount Airy
Flippin, R. E. L.	Pilot Mountain
Flippin, S. T.	Siloam
Flowe, B. F.	Kannapolis
Flowers, C. A.	Columbia
Floyd, A. G.	Fair Bluff
Flynt, S. S.	Rural Hall
Foard, Frank	Hickory, R. F. D.
Foard, Fred	Hickory, R. F. D.
Foil, M. A.	Mount Pleasant
Fortune, A. F.	Greensboro
Fowler, M. L.	Zebulon
Fowlkes, J. I.	Hamlet
Fox, D. L.	Randleman
Fox, T. I.	Franklinville
*Frazer, H. T.	Asheville
*Frizzelle, M. T.	Ayden
Furman, W. H.	Henderson
Gallant, R. M.	Charlotte
Galloway, W. C. (Hon.)	Wilmington
Gambill, I. S.	Dobson
*Gamble, J. R.	High Shoals
*Gardner, G. D.	Asheville
Garren, R. H.	Monroe
Garrenton, Cecil	Bethel
Garrett, F. B.	Rockingham
Garrett, F. J.	Rockingham
*Garrison, D. A.	Gastonia
Gayle, E. M.	Morganton
Gentry, G. W.	Timberlake
Gibbon, R. L.	Charlotte
Gibbs, N. M.	New Bern
Gibson, J. S.	Gibson
Gibson, L. O.	Statesville
Gibson, M. R.	Raleigh
*Gill, J. N.	Weaverville
Gill, R. J.	Henderson
Gilmer, C. S.	Greensboro
Gilmer, B. H.	Cape Charles, Va.
Gilmore, W. D.	Mooresville
Gilreath, F. H.	North Wilkesboro
Ginn, T. L.	Goldsboro
*Glenn, E. B.	Asheville
Glenn, H. F.	Gastonia
*Glenn, L. N.	Gastonia
Godwin, G. C.	Williamston
Gold, C. F.	Ellenboro
Gold, T. B.	Lawndale
Goley, W. R.	Graham
Goode, T. V., Jr.	Morganton
Goodman, A. B.	Lenoir
Goodwin, A. W.	Raleigh
Gordon, J. R.	Raleigh
Gouger, G. J.	Concord, R. F. D.

Name.	*Address.*
Gove, Anna M.	Greensboro
Grady, J. C.	Kenly
*Grady, L. V.	Taylors
Grady, Wm. E.	Tryon
Graham, Benj.	Wilmington
Graham, G. A.	Raeford
*Graham, Joseph	Durham
Graham, W. A.	Charlotte
Grantham, W. L.	Lumberton
Gray, E. P.	Winston-Salem
Grayson, C. S.	High Point
Greene, A. D.	Rosman
*Greene, J. B.	Asheville
Green, W. W.	Tarboro
Greenwood, A. B.	Fayetteville
*Greenwood, S. E.	Fletchers, R. F. D.
Grier, S. A.	Harrisburg
Griffin, J. A. (Hon.)	Clayton
Griffin, L. M.	Asheville
Griffin, T. A.	Clayton
Griffin, W. R.	Morganton
*Griffith, F. W.	Asheville
Griggs, J. B.	Elizabeth City
Griggs, W. T.	Poplar Branch
Grimes, W. L.	Winston-Salem
Guin, L. E.	Waxhaw
Hackney, B. H.	Bynum
Hagaman, J. B.	Todd
Halford, J. W.	Lillington
Hall, J. C.	Albemarle
Hall, J. K.	Richmond, Va.
Hall, Wright (Hon.)	Wilmington
Hammock, J. C.	Walkertown
Hammond, A. F.	Pollocksville
Hamrick, J. Y.	Boiling Springs
Hamrick, T. G.	Shelby
Hand, E. H.	Pineville
Hanes, F. M.	Winston-Salem
Hardee, P. R.	Stem
Hardin, E. R.	Clinton
*Hardison, M. H.	Creswell
Hardy, I. M.	Kinston
Hargrove, R. H. (Hon.)	Robersonville
*Hargrove, W. F.	Kinston
Harper, J. H.	Snow Hill
Harrell, G. N.	Murfreesboro
Harrell, L. B.	Caroleen
Harrell, S. N.	Tarboro
Harris, A. H.	Wilmington
*Harris, F. R.	Henderson
Harris, I. A. (Hon.)	Alexander
Harris, J. H.	Franklinton
Harrison, A. S.	Enfield
*Harrison, Edmund	Greensboro
Harrison, J. S.	Elm City
Hartsell, F. E.	Big Lick
Hartsell, J. A.	Concord
Hasley, B. F.	Roper
Hassell, J. L.	Creswell
Hatchcock, T. A.	Norwood
Hawes, S. J.	Dover
Hayes, R. B.	Hillsboro
*Hays, Benj. K.	Oxford
Haywood, Hubert	Raleigh
Haywood, Hubert, Jr.	Raleigh
Hayworth, C. A.	Coleridge
Hege, J. R.	Clemmons
Heilig, H. G.	Salisbury
Helms, T. L.	Seagrove
Henderson, R. B.	Franklinton
Henderson, T. B.	Henderson
Hennessee, E. A.	Glen Alpine
Herbert, F. L.	Andrews
*Herbert, W. P.	Asheville
Herman, F. L.	Conover
Herring, B. S.	Wilson
Herron, A. M.	Charlotte
Hester, J. R.	Knightdale
Hester, J. R.	Oxford, R. F. D.
Hiatt, H. B.	High Point
Hicks, C. S.	Durham
Hicks, I. F.	Dunn
Hicks, W. N. (Hon.)	Durham
Highsmith, Chas.	Dunn
*Highsmith, J. F.	Fayetteville
Highsmith, Seavy	Fayetteville
*Highway, S. C.	Murphy
Hill, C. D.	Durham
*Hill, D. J.	Lexington
*Hill, J. N.	Murphy
Hill, W. I.	Albemarle
Hill, W. L.	Lexington, R. F. D. 4
Hilton, J. J.	Greensboro
Hines, E. R.	Rocky Mount
Hinnant, Milford	Micro
Hobgood, J. E.	Thomasville
Hocutt, B. A.	Clayton
Hodges, J. M.	Cranberry
Hodgin, H. H.	Red Springs

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Hoggard, W. A.	Woodville
Hollingsworth, E. M.	Mount Airy
Hollingsworth, E. T.	Ivanhoe
Hollingsworth, R. E.	Mount Airy
Holloway, O. W.	Northside
Holloway, R. L.	West Durham
*Hollyday, W. M.	Asheville
Holmes, A. B.	Council
Holt, T. J.	Wise
Holt, W. P.	Duke
Holt, W. T.	McLeansville
Honnett, Jos. Harry	Wilmington
Hooks, Thel	Smithfield
*Hooper, D. D.	Sylva
Hooper, J. O.	Saluda
Hooper, Jos. W.	Wilmington
Hoover, C. H.	Crouse
Hoover, H. R.	Wilson
Horton, M. C.	Raleigh
Horton, W. C.	Raleigh
Horton, W. P.	North Wilkesboro
Houck, A. F.	Morganton
*Housacker, C. G.	Hickory
House, W. H.	Oak City
Houser, E. A.	Fallston
*Houser, M. C.	Charlotte
*Houser, O. J.	Charlotte
*Hovis, L. W.	Ahoskie
Howe, W. B. W.	Hendersonville
Howell, W. L.	Ellerbe, R. F. D.
Hoyle, H. B.	Biscoe
Hubbard, C. C.	Farmers
*Hunnicutt, W. J.	Asheville
Hunt, C. W.	Brevard
Hunt, J. F.	Casar
*Hunter, J. V.	Ashboro
Hunter, M. C.	Huntersville
Hunter, N. C.	Laurinburg
*Huston, J. W.	Asheville
*Hutchens, E. M.	North Wilkesboro
Hutchison, S. S.	Council
Hyatt, F. C.	Greensboro
Ingersoll, L. M.	Asheville
Ingram, C. B.	Mount Gilead
Irwin, J. R. (Hon.)	Charlotte
Ivey, H. B.	Goldsboro
Izlar, H. L.	Winston-Salem
Jackson, C. C.	Yeatesville
Jackson, W. L.	High Point
James, Frantz	Laurinburg
James, W. D.	Hamlet
Jarboe, P.	Greensboro
Jarman, F. G.	Rosemary
Jenkins, C. L.	Raleigh
Jenkins, J. H.	Gastonia
Jerome, J. R.	Wingate
Jewett, R. D.	Winston-Salem
John, Peter	Laurinburg
Johnson, Alice E.	Asheville
Johnson, B. C.	Bunn
Johnson, J. B.	Old Fort, R. F. D.
Johnson, J. G.	Charlotte
Johnson, N. M. (Hon.)	Durham
Johnson, R. W.	Apex
Johnson, T. C.	Lumberton
Johnson, W. A.	Reidsville
Johnson, W. C.	Canton
Johnson, W. M.	Winston-Salem
*Jonas, J. F.	Marion
Jones, Alex. F.	Ararat, R. F. D. 1
Jones, A. G.	Walnut Cove
Jones, A. Lee	Hetton
Jones, Clara E.	Goldsboro
Jones, C. M.	Grimesland
Jones, R. D.	New Bern
Jones, Thos. J.	Lansing
Jones, T. Lester	Lansing
Jones, U. G.	West Jefferson
*Jones, Wm. M.	Greensboro
Jordan, A. C.	Durham
*Jordan, C. S.	Asheville
*Jordan, T. M.	Raleigh
Jordan, W. S.	Fayetteville
Joyner, T. O.	Severn
Juat, Francis	Raeford
Judd, E. C.	Raleigh
Judd, J. M.	Cardenas
*Julian, C. A.	Thomasville
Justice, G. B.	Marion
Kafer, O. O.	Edward
Kapp, H. H.	Winston-Salem
Keiger, O. R.	Winston-Salem
Kendrick, R. L.	Elizabeth City
*Kent, A. A.	Lenoir

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*Kerns, T. C.	Durham
Kerr, J. D.	Clinton
King, M. N.	Durham
King, P. M.	Charlotte
King, R. M.	Concord
Kinsman, H. F.	Hamlet
Kirby, G. S.	Marion
Kirk, W. R.	Hendersonville
Kizer, W. C.	Reepsville
Knight, J. B. H.	Wilmington
Knight, W. P.	Greensboro
Knoefel, A. E.	Black Mountain
*Knox, A. W. (Hon.)	Raleigh
Koonce, S. E.	Wilmington
Kornegay, G. E.	Kinston
Kornegay, L. W.	Rocky Mount
*Lafferty, R. H.	Charlotte
Lamm, I. W.	Lucama
Lancaster, R. M.	Dobson
Landen, J. F.	Chinquapin
Lane, J. L.	Rocky Mount
Lapham, Mary E.	Highlands
Lassiter, E. W.	Rich Square
Laster, P. D.	Moncure, R. F. D. 1
Laton, J. F.	Albemarle
Lattimore, E. B.	Shelby
*Laughinghouse, C. O'H.	Greenville
*Lawrence, C. S.	Winston-Salem
Leak, J. J.	Dan River
Ledbetter, J. M.	Rockingham
Lee, S. P. J.	Dunn, R. F. D. 6
Lee, L. V.	Lattimore
Leeper, D. H.	Hiddenite
Leggett, K. (Hon.)	Hobgood
*Leinbach, R. F.	Charlotte
Lewis, G. W.	Wilson
Lewis, H. W.	Jackson
Lewis, R. H. (Hon.)	Raleigh
Lilly, J. M.	Fayetteville
*Linville, A. Y.	Winston-Salem
Lister, E. W.	Weeksville
Lister, J. L.	Jackson
Little, E. E.	Statesville, R. F. D.
Livingstone, Everett	Gibson
Lloyd, B. B.	Chapel Hill
Lockett, E. A.	Winston-Salem
Long, B. L.	Glen Alpine
Long, B. L. (Hon.)	Hamilton
*Long, E. F.	Denton
Long, F. Y.	Catawba
*Long, H. F.	Statesville
*Long, J. W. (Hon.)	Greensboro
Long, M. T.	Newland
Long, T. W.	Newton
Long, T. W. M.	Roanoke Rapids
Long, V. M.	Winston-Salem
Long, W. T.	Roxboro
Lott, H. S.	Winston-Salem
*Love, B. E.	Roxboro
Love, W. J. (Hon.)	Wilmington
Lovill, Robert J.	Wingate
Lowery, J. R.	Raleigh
Lubchenko, M. E.	Newells
Lucas, W. H. G.	White Oak
Lyday, A. E.	Penrose
Lyday, C. E.	Albemarle
*Lyle, S. H.	Franklin
*Lynch, J. M.	Asheville
Lyon, E. H.	Bahama
McAdams, C. R.	McAdenville
McAnally, W. J.	High Point
*McBrayer, L. B.	Sanatorium
McBrayer, Reuben	Sanatorium
McBrayer, T. E.	Shelby
*McCain, H. W.	High Point
McCain, P. P.	Sanatorium
McCain, W. R.	Waxhaw
McCall, A. C.	Rocky Mount
*McCampbell, John	Morganton
McCanless, W. L.	Danbury
McCanless, W. V.	Danbury
McCombs, C. J.	Gastonia
*MacConnell, J. W.	Davidson
McCotter, S. E.	Bayboro
McCoy, T. M.	Mount Holly
*McCracken, C. M.	Fairview
*McCracken, J. R.	Waynesville
McCuiston, A. M.	Richlands
McCullers, J. J. L.	McCullers
McDaniels, L. E.	Lasker
McDonald, A. A.	Jackson Springs
McDonald, A. D. (Hon.),	Wilmington
McDowell, F. C.	Zebulon
*McFayden, P. R.	Concord
McGeachy, R. S.	Raleigh
McGee, J. W.	Raleigh
McGehee, J. W.	Reidsville
McGougan, J. V.	Fayetteville

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*McIntosh, D. M.	Old Fort
McIntosh, L. C.	Henderson
McIntosh, W. R.	Roberdel
McIver, E. M.	Jonesboro
McIver, Lynn	Sanford
McKaig, F. T.	Andrews
McKay, H. W.	Charlotte
McKay, J. F.	Buie's Creek
McKee, J. S.	Raleigh
MacKethan, D. G.	Fayetteville
MacKethan, J. A.	Fayetteville
McLaughlin, J. E.	Statesville
*McLaughlin, S. C.	Charlotte
McLean, Allen,	Wagram
McLean, J. W.	Godwin
McLean, Peter,	Laurinburg
*McLelland, W. D.	Mooresville
McLemore, G. A.	Clayton
McLeod, A. H.	Aberdeen
McLeod, G. M.	Carthage
*McMahan, J. W.	Cresmont
McManus, W. L.	Bonlee
McMillan, B. F. (Hon.)	Red Springs
McMillan, R. D.	Red Springs
McMillan, W. D. (Hon.)	Wilmington
*McMullan, Oscar	Elizabeth City
McNairy, C. B.	Kinston
McNeill, J. W. (Hon.)	Fayetteville
*MacNider, W. deB.	Chapel Hill
McPhail, L. D.	Rockingham
McPhaul, W. A.	Lumberton
McPherson, C. W.	Burlington
McPherson, S. D.	Durham
Macon, G. H.	Warrenton
Macon, P. J.	Warrenton
Magruder, L. F.	Albemarle
*Mallett, E. P.	Hendersonville
Malloy, S. A.	Yanceyville
Malone, J. E.	Louisburg
Maness, J. M.	Roberdel
Mann, I. T.	High Point
Mann, Stuart	Moyock
Manning, I. H.	Chapel Hill
Manning, J. M.	Durham
Marriner, N. B.	Belhaven
Marriott, H. B.	Battleboro
Martin, E. G.	Red Oak
Martin J. A.	Lumberton
*Martin, M. S.	Mt. Airy
Martin, W. C.	Mocksville
*Matheson, J. P.	Charlotte
Matheson, R. C.	Madison
Matthews, J. H.	Vass
Matthews, J. O.	Clinton
Matthews, M. L.	Cameron
*Maxwell, C. S.	Beaufort
Maxwell, H. B.	Whiteville
Maxwell, J. F.	Pine Hill
Maynard, J. D.	Knott's Island
Meadows, E. B.	Oxford
Meadows, W. J.	Greensboro
Mease, J. H.	Canton
Mebane, W. C.	Wilmington
Mebane, W. N.	Greensboro
Meisenheimer, C. A. (Hon.)	Charlotte
Melvin, W. C.	Linden
Menzies, H. C.	Hickory
*Meriwether, B. M.	Asheville
Meroney, B. B.	Murphy
Merritt, J. H.	Woodsdale
Michaux, E. R.	Greensboro
Miles, Mary S.	Greensboro
Miller, J. F.	Ashboro
Miller, R. B.	Goldsboro
Milliken, J. S.	Buffalo City
Mimms, C. W.	Winston-Salem
*Minor, C. L.	Asheville
Mitchell, G. W.	Macclesfield
Mitchell, J. H.	Ahoskie
Mitchell, W. F.	Shelby
*Mitchener, J. S.	Edenton
Mock, F. L.	Lexington, R F D 3
Moir, S. A.	Francisco
Monk, G. M.	Spencer
Monk, H. D.	Trenton
Monroe, J. P.	Sanford
Monroe, W. A.	Sanford
Montague, S. S.	Roxboro, R. F. D. 2
Moore, A. W.	Charlotte
Moore, C. E.	Greensboro
Moore, C. E. (Hon.)	Wilson
Moore, D. B.	Drexel
Moore, E. G.	Elm City
Moore, F. T.	Benson
Moore, Hugh T.	Wilmington
Moore, K. C.	Wilson
Moore, J. C.	Mortimer
Moore, J. L.	Wendell
*Moore, J. N.	Marshall

Name.	*Address.*
*Moore, Oren	Charlotte
*Moore, R. A.	Charlotte
Moore, T. V.	Acme
Moore, W. B.	Smith
Moore, W. H.	Wilmington
Moore, W. J.	Ashboro
Moorefield, R. H.	Westfield, R. F. D.
Mordecai, Alfred	Raleigh
Morehead, R. P.	Weldon
Morris, E. R.	Asheville
Morris, J. A.	Oxford, R. F. D. 2
*Morrow, W. C.	Andrews
Morse, L. B.	Hendersonville
Morton, N. D.	Norlina
Moseley, C. W.	Greensboro
Moseley, H. P.	Farmville
Moseley, Z. V.	Kinston
Moser, W. D.	Burlington
Mudgett, W. C.	Southern Pines
Muns, L. A.	Smithfield
*Munroe, J. P.	Charlotte
Murphy, J. G.	Wilmington
Murphy, W. B.	Snow Hill
Meyerberg, W. B.	Pine Level
Myers, J. Q.	Charlotte
Nalle, B. C.	Charlotte
Nance, G. B.	Monroe
Nash, Fred	St. Paul's
Nelson, R. J.	Robersonville
Nesbitt, C. T.	Wilmington
Newbern, J. M.	Jarvisburg
Newby, G. E.	Hertford
Newell, H. A.	Louisburg
Newell, J. O.	Henderson, R. F. D. 6
Newell, L. B.	Charlotte
Newman, H. H.	Salisbury
*Nichols, A. A.	Sylva
*Nichols, A. F.	Roxboro
Nichols, A. S.	Sylva
Nichols, C. G.	Roxboro
Nichols, R. E.	Gorman
Nicholson, C. R.	Harmony
Nicholson, J. L. (Hon.)	Richlands
Nicholson, S. T.	Washington
*Nisbet, W. O.	Charlotte
Noble R. P.	Raleigh
Noble, R. J. (Hon.)	Selma
Nobles, J. E. (Hon.)	Greenville
Noell, R. H.	Swansboro
Norman, G. W.	Greensboro
Norman, J. S.	Bladenboro
Norris, Henry	Rutherfordton
Norton, N. D.	Norlina
Oats, Geo.	Grover
Ogburn, H. H.	Greensboro
Olive, P. W.	Wade
Olive, W. W.	Durham
*Oliver, A. S.	Greensboro
*Orr, C. C.	Asheville
Orr, C. V.	Andrews
Packard, G. H.	White Rock
Page, B. W.	Lumberton
Palmer, B. H.	Shelby
Palmer, M. C.	Tryon
Parker, C. G.	Woodland
Parker, G. E.	Benson
*Parker, J. R.	Burlington
Parker, Paul G.	Potecasi
Parrott, A. D.	Kinston
Parrott, J. M.	Kinston
Parrott, W. T.	Kinston
Patchin, D. F.	Roanoke Rapids
Pate, F. J.	Greensboro
Pate, W. T.	Gibson
Patrick, J. E.	Seven Springs
Patrick, L. N.	Gastonia
Patterson, J. A.	Concord
Patterson, J. F.	New Bern
Payne, R. L.	Monroe
Peacock, J. W.	Thomasville
Peck, E. J.	Hot Springs
*Peeler, C. N.	Charlotte
Petee, C. H.	Warrenton
*Pegram, R. W. S.	Wilkesboro, R. F. D.
Pemberton, W. D. (Hon.)	Concord
Pendleton, A. S.	Raleigh
Penny, E. M.	Louisburg
Penny, J. A. J.	Neuse
Pepper, J. K.	Winston-Salem
Perkins, D. R.	Marshville
Perkins, F. E.	Henderson
Perkins, J. R.	Winston-Salem
Perkins, S. L.	Jefferson
Perry, H. G.	Wood
Perry, M. P. (Hon.)	Macon
Peery, Vance P.	Kinston
Person, E. C.	Pikeville

Name.	*Address.*
Person, H. M.	Saulston
Person, J. B.	Selma
Person, T. E.	Stantonburg
Peters, W. A.	Elizabeth City
*Peterson, C. A.	Spruce Pine
Petrie, R. W.	Charlotte
Petteway, G. H.	Charlotte
*Pfohl, S. F.	Winston-Salem
Pharr, T. F. (Hon.)	Harrisburg
Pharr, W. W. (Hon.)	Charlotte
Phifer, E. W.	Morganton
Phillips, C. C.	Wallburg
Phillips, M. D.	Dalton
Pickett, J. A.	Burlington, R. F. D. 1
Pierce, H. L.	Locust
Pittman, R. L.	Fayetteville
Pitts, W. I.	Lenoir
Pollard, W. B.	Winton
Pollock, Raymond A.	New Bern
Pope, H. T.	Lumberton
Potter, W. T.	Edward
Powell, H. H.	Stantonburg
Powers, J. B. Jr.	Wake Forest
Pressly, G. W.	Charlotte
Prevette, I. C.	Charlotte
Pridgen, C. L.	Wilmington
Primrose, R. S.	New Bern
Prince, D. M. (Hon.)	Laurinburg
*Pritchard, A. T.	Asheville
Pritchard, J. L.	Windsor
Procter, I. M. Jr.	U. S. Navy
Proffitt, T. J.	Elk Park
Purdy, J. J.	Oriental
Puett, Bess V.	Dallas
Pugh, C. H.	Stanley
Purefoy, G. W.	Asheville
Putney, R. H.	Elm City
Query, R. Z.	Charlotte, R. F. D.
Quickel, T. C.	Gastonia
Quillen, E. B.	Rocky Mount
Quinn, R. F.	Magnolia
Raby, J. C.	Leggett
Rainey, W. T.	Baden
*Rakestraw, C. M.	Asheville
Ramseur, G. A.	China Grove
Rankin, P. L.	Mt. Gilead
Rankin, S. W.	Concord
*Rankin, W. S.	Raleigh
Ransom, J. L.	Pineville, R. F. D
Ray, Hickman,	Rocky Mount
Ray, J. E. Jr.	Raleigh
Ray, O. L.	Raleigh, R. F. D.
Ray, R. C.	Beaver Creek
Reaves, C. R.	Greensboro
Reaves, W. Perry	Greensboro
Reece, J. M.	Elkin
Reed, D. H.	Beaufort
Reedy, Howard	Rowland
*Reeves, A. F.	Asheville
Reeves, J. L.	Whittier
Register, F. M.	Tillery
Reid, G. P.	Forest City
Reid, J. W.	Lowell
Reid, R. M.	Gastonia
Reitzel, C. E.	High Point
*Reynolds, C. V.	Asheville
*Reynolds, T. F.	Canton
Rhem, J. F.	New Bern
Rhodes, J. S.	Williamston
Rhyne, R. E.	Mt. Holly
*Rich, J. C.	Candler
Richardson, W. J.	Greensboro
Ricks, L. E.	Fairmont
Riddle, J. B.	Morganton
Rieves, J. T.	Greensboro
Riggsbee, A. E.	Morrisville
*Ring, J. W.	Elkin
*Ringer, P. H.	Asheville
Ritter, F. W. (Hon.)	Moyock
Roberson, Chas.	Greensboro
Roberson, Foy	Durham
Roberson, G. B.	Greensboro
Roberson, Mike	Durham
*Roberts, Frank	Marshall
Roberts, H. C.	Coats
Robinson, Frank	Lowell
Robinson, J. D.	Wallace
Robinson, L. F.	Raleigh
Robinson, M. E.	Goldsboro
*Robinson, W. F.	Mars Hill
Rodman, J. C.	Washington
Robinson, W .J.	Creston
Rodwell, J. R.	Mocksville
Rogers, J. R.	Raleigh
Rogers, W. A.	Franklin
Rogers, W. D.	Warrenton
Root, A. S.	Raleigh
Rose, A. H.	Smithfield

Name.	*Address.*
Rose, A. S.	Fayetteville
Ross, G. H.	East Durham
Ross, O. B.	Charlotte
Rosser, R. G.	Broadway
Rosser, R. G.	Rock Fish
*Rowe, H. B.	Mt. Airy
Rowe, H. E.	Newton
*Rowe, R. H.	Bessemer City
*Royal, B. F.	Morehead City
Royall, M. A.	Elkin
*Royster, H. A.	Raleigh
Royster, S. S.	Shelby
Royster, T. H.	Tarboro
Royster, W. I. (Hon.)	Raleigh
Rozier, R. G.	Lumberton
Ruff, F. R.	Duke
*Russell, E. R.	Asheville
*Russell, J. M.	Canton
Sadelson, G. H.	Charlotte
Sadler, R. C.	Whiteville
Saine, J. W.	Lincolnton
Saliba, John	Elizabeth City
*Saliba, M. M.	Wilson
Salley, E. McQ.	Saluda
Salmons, H. C.	Jonesville
Salmons, L. R.	Winston-Salem
Sanderford, J. F.	Creedmore
Saunders, J. H.	Williamston
Sawyer, C. J.	Windsor
Sawyer, C. W.	Elizabeth City
Sawyer, Jas.	Asheville
Sawyer, W. W.	Elizabeth City
Schallert, P. O.	Winston-Salem
Schaub, O. P.	Winston-Salem
Schonwald, J. L. (Hon.)	Wilmington
Schoonover, R. A.	Greensboro
Schubert, L. H.	Washington
Scott, C. L.	Sanford
*Scruggs, W. H.	Asheville
Scruggs, W. M.	Rutherfordton
Sessons, E. T.	Turkey
*Sevier, D. E.	Asheville
*Sevier, J. T.	Asheville
Sexton, C. H.	Dunn
*Shafer, I. E.	Gold Hill
Shamburger, J. B.	Star
Sharp, C. R.	Lexington
Sharpe, F. L.	Statesville
Shaw, Colin	Maysville
Shaw, W. G.	Wagram
Sherrill, C. L.	Statesville
Shields, H. B.	Carthage
*Shipp, G. W.	Newton
Shipp, W. T.	Newton
*Shore, C. A.	Raleigh
*Shuford, J. H.	Hickory
*Shull, J. R.	Cliffside
Sidbury, J. B.	Wilmington
Sigman, F. G.	Spencer
Sikes, G. L.	Salemburg
Sikes, G. T. (Hon.)	Grissom
Siler, F. L.	Franklin
*Simmons, J. O.	North Charlotte
Sink, C. S.	N. Wilkesboro
Skinner, L. C.	Greenville
Slate, W. C.	Walnut Cove
Sloan, Henry	Ingold
Sloan, H. L.	Lincolnton
Sloan, J. M.	Gastonia
Slocum R. B.	Wilmington
Sloop, E. H.	Crossnore
Sloop, Mary M.	Crossnore
Smith, A. T.	Greensboro
*Smith, B. R.	Asheville
Smith, F.	Linden
Smith, G. A.	Black Creek
Smith, J. A.	Lexington
Smith J. B.	Pilot Mt.
Smith, O. F.	Scotland Neck
Smith, Owen H.	High Point
Smith, R. A. (Hon.)	Goldsboro
Smith, R. W.	Hertford
Smith, W. F.	Chadbourn
Smith, W. H.	Mt. Olive
Smithwick, J. E.	Jamesville
Smoot, J. E.	Concord
Smoot, M. L.	Fayetteville
Snipes, E. P.	Jonesboro
Somers, L. P.	Osbornville
Sorrell, L. P.	Raleigh, R. F. D.
Spainhour, E. H.	Winston-Salem
Spears, W. P.	Cooleemee
Speed, J. A.	Durham
*Speight, J. A.	Rocky Mount
Speight, J. P.	Rocky Mount
Speight, J. W.	Roper
Speight, R. H. Sr. (Hon.)	Whitakers, R. F. D.
Speight, R. H.	Rocky Mount

Name.	*Address.*
Spencer, F. B.	Salisbury
*Spencer, W. O.	Winston-Salem
Spicer, John	Goldsboro
Spoon, O. A.	Greensboro
Sprinkle, C. N.	Mars Hill
*Spruill, J. L.	Columbia
*Squires, J. W.	Charlotte
Staley, S. W.	Rocky Mount
Stancell, R. H.	Margerettsville
Stancell, W. W.	Raleigh
Stanton, D. A.	High Point
Stanton, T. M.	High Point
*Starr, H. F.	Greensboro
Staton, L. L. (Hon.)	Tarboro
Steele, E. S.	Hickory
Steele, W. C.	Mt. Olive
Stephenson, M. R.	Seaboard
Sterrett, J. R.	West Durham
Stevens, J. A. (Hon.)	Clinton
*Stevens, M. L.	Asheville
Stevens, S. A.	Monroe
Stevens, W. L.	Shiloh
Stevenson, T. F.	Hickory
*Stewart, H. D.	Monroe
Stewart, J. J.	Conover
*Stokes, J. E.	Salisbury
Storie, J. G.	Proctor
Street, M. E.	Glendon
Strickland, E. L.	Wilson
Strickland, E. F.	Bethania
Strickland, J. T.	Nashville
*Stringfield, S. L.	Waynesville
Stringfield, S. M.	Waynesville
Strong, C. M.	Charlotte
Strong, W. M.	Charlotte
Strosnider, C. F.	Goldsboro
Stroud, O. B.	Ore Hill
Summerell, E. N. (Hon.)	China Grove
Summers, C. L.	Winston-Salem
*Summey, T. J.	Brevard
*Sumner, T. W.	Fletcher
Sumner, W. I.	Randleman
Sutton, C. W.	Richlands
Sutton, J. B.	Elk Park
*Sutton, W. G.	Seven Springs
Swann, J. F.	Semora
Sweeney, John	Durham
Swindell, C. L.	Wilson
Talley, J. S.	Troutmans
Tate, C. S.	Ramseur
*Tate, W. C.	Banner Elk
Tayloe, D. T. (Hon.)	Washington
Tayloe, Josh	Washington
Taylor, F. R.	High Point
Taylor, H. C.	Nebo
Taylor, G. W.	Mooresville
*Taylor, I. M. (Hon.)	Morganton
Taylor, J. T.	Madison
Taylor, W. L.	Stovall
Taylor, W. S.	Mt. Airy
Teague, R. J.	Roxboro
*Templeton, J. M.	Cary
*Tennent, G. S.	Asheville
Terrell, A. J.	Black Mountain
*Terry, J. R.	Lexington
*Terry, P. R.	Asheville
Terry, W. C.	Hamlet
*Thames, John	Winston-Salem
Thigpen, W. J.	Tarboro
Thomas, G. G. (Hon.)	Wilmington
Thomas, W. N.	Oxford
Thompson, A. F.	Troy
*Thompson, C. D.	Lincolnton
*Thompson, Cyrus	Jacksonville
Thompson, H. A.	Raleigh
Thompson, J. B.	Bostic, R. F. D. 1
Thompson, Joe	Creedmore
Thompson, N. A.	Lumberton
Thompson, S. R.	Charlotte
Thompson, S. W.	Neuse
Thompson, S. W. Jr,	Sanatorium
Thompson, W. A.	Rutherfordton
Thurston, Asa	Statesville
Tidmarsh, H. W.	Randleman
*Tidwell, J. E.	Andrews
*Tilson, J. C.	Marshall
Townsend,	Charlotte
Trantham, H. L. (Hon.)	Salisbury
Troxler, R. M.	Burlington
Tucker, J. H.	Charlotte
Tugman, B. W.	Warrensville
Tull, Henry (Hon.)	Kinston
*Turlington, H. C.	Cooper, R. F. D.
Turner, H. G.	Raleigh
*Turner, J. M.	N. Wilkesboro
Turner, J. P.	Greensboro

Name.	*Address.*
*Tuttle, R. G.	Walnut Cove
Twitty, J. C.	Rutherfordton
Tyson, T. D.	Pleasant Garden
Uhls, R. T.	Hester
Underhill, H. P.	Wendell
Underwood, O. E.	Roseboro
Upchurch, R. T.	Henderson
Utley, H. H.	Benson
Valk, A. deT.	Winston-Salem
*Van Poole, C. M. (Hon.)	Salisbury
Vaughn, J. C.	Rich Square
*Vernon, J. W.	Morganton
Vestal, Willis J.	Lexington
Vick, G. D.	Selma
Von Ruck, K.	Asheville
*Von Ruck, S. H.	Asheville
Wadsworth, W. H.	Concord
Wakefield, H. A.	Charlotte
Walker, C. E.	Charlotte
*Walker, H. D.	Elizabeth City
Walker, J. B.	Gibsonville
Walker, L. A.	Burlington
Walker, L. K.	Ahoskie
Walker, W. E.	Burlington
Wall, R. L.	Winston-Salem
Wallace, J. W.	Concord
Walters, C. M.	Union Ridge
Ward, J. E.	Robersonville
Ward, V. A.	Robersonville
Ward, W. H. (Hon.)	Plymouth
*Warlick, E. S.	Morganton
Warren, A. J.	Hillsboro
Warren, R. F.	Prospect Hill
Warren, R. L.	Dunn
*Warren, W. E.	Williamston
*Washburn, B. E.	Wilson
Watkins, F. B.	Morganton
Watkins, G. S.	Oxford
Watkins, G. T.	Durham
Watson, J. B.	Raleigh
Watson, Leon	Broadway
Watts, R. E.	Oriental
*Way, J. H. (Hon.)	Waynesville
*Weaver, H. B. (Hon.)	Asheville
*Weaver, W. J.	Asheville
Webb, B. G.	Andrews
*Webb, L. H.	Chapel Hill
Webb, W. P.	Rockingham
Wellborn, W. R.	Elkin
Wessell, J. C.	Wilmington
West, G. H.	Newton
*West, L. N.	Raleigh
West, R. M.	Salisbury
West, T. M.	Fayetteville
Wharton, L. D.	Smithfield
*Whisnant, A. M.	Charlotte
Whitaker, A. C.	Julian
Whitaker, F. A.	Kinston
Whitaker, F. S.	Kinston
Whitaker, R. A. (Hon.)	Kinston
Whitaker, R. B.	Whiteville
White, J. W.	Wilkesboro
Whitehead, J. P.	Rocky Mount
Whitehead, John (Hon.)	Salisbury
Whitfield, W. C.	Grifton
Whitley, D. P.	Albemarle
Whittington, J. B.	Winston-Salem
*Whittington, W. P. (Hon.)	Asheville
*Whittington, W. W.	Snow Hill
*Wiggins, J. C.	Winston-Salem
Wilkes, Grover	Haw River
Wilkerson, C. B.	Apex
Wilkerson, T. E.	Raleigh
Wilkins, J. W.	Mount Olive
Wilkins, R. B.	Raeford
Wilkins, S. A.	Dallas
Willcox, J. W.	Laurel Hill
Williams, A. F.	Wilson
Williams, B. B.	Greensboro
Williams, C. B.	Elizabeth City
Williams, J. A.	Greensboro
Williams, J. D.	Guilford
*Williams, John Hey (Hon.)	Asheville
Williams, J. M.	Warsaw
*Williams, J. R.	Asheville
Williams, J. W.	Everitts
Williams, R. C.	Wallace
Willis, B. C.	Rocky Mount
Willis, W. M.	Morehead City
Wilmerding, W. E.	Selma
Wilson, A. R. (Hon.)	Greensboro
Wilson, C. L.	Lenoir
Wilson, F. G.	Gastonia
Wilson, N. G.	Summerfield
Wilson, R. B.	Newton Grove

Name.	*Address.*
*Wilson, W. P.	Madison
Wimberly, G. L.	Rocky Mount
Winstead, J. A.	Nashville
Wiseman, C. B.	Henrietta
Wishart, W. E.	Charlotte
*Witherspoon, B. J.	Charlotte
Woltz, J. L.	Mt. Airy
*Wood, J. W.	Shelby, R. F. D.
Woodward, A. G.	Princeton
Woodard, C. A.	Durham
Woodard, G. B.	Kenly
Wooding, C. E.	Winston-Salem
Woodson, C. W.	Salisbury
Wooten, A. M.	Pinetops
Wrenn, Frank	Siler City
Wright, J. B.	Raleigh
Wright S. G.	Elizabeth City R. F. D.
Wyatt, Wortham	Winston-Salem
Yarborough, R. F.	Louisburg
*Yokeley, R. V.	Lexington
York, A. A.	Linwood, R. F. D. 2
York, H. B.	Williamston
Young, J. J.	Clayton
Young, L. B.	Rolesville
Yount, E. McD.	Statesville
Zimmerman, R. U.	Lexington

LIST OF MEMBERS FOR 1917 BY COUNTIES

NOTE.—Every physician in the State whose name we could secure has had an opportunity to supply correct information as to his name, post-office, academic and medical education, date of State license, and date of State Society was joined. A few did not take advantage of the opportunity, however. Any one finding an error should report it to the secretary of the society, so that the report for next year will be correct.

ALAMANCE COUNTY SOCIETY.

Name and Address.	*Licensed.*	*Joined State Society.*
President	....	....
Secretary, R. M. Troxler, Burlington	1914	1915
Univ. of Md., 1914.		
Anderson, C. A., Burlington	1893	1896
P. and S., Balt., 1901.		
Barefoot, J. J., Graham	1907	....
University of N. C., 1907.		
Faucette, T. S., Burlington	1893	1916
Balt. M. C., 1892.		
Goley, W. R., Graham	1885	1893
P. and S., Balt., 1885.		
McPherson, C. W., Burlington	1910	....
Univ. of Md., 1910.		
Moser, W. D., Burlington	1910	....
Univ. of N. C., 1910.		
Parker, J. R., Burlington	....	....
Pickett, J. A., Burlington, R. F. D. 1	1894	1904
Univ. of Nashville, 1894.		
Walker, L. A., Burlington	1899	1904
Univ. Coll. of Med., Va., 1898.		
Walker, W. E., Burlington	1903	1903
Med. Coll. of Va., 1903.		
Walters, C. M., Union Ridge	1908	....
Univ. of Md. and the College of P. and S., Balt., 1908.		

ALEXANDER COUNTY SOCIETY.

(SEE IREDELL-ALEXANDER.)

ASHE COUNTY SOCIETY.

President	....	....
Secretary	....	196
Blevins, Manley, Jefferson	....	1916
C. P. and S., Balt., Md.		
Colvard, J. W., Jefferson	....	....
Eller, C. R., Nathan's Creek	....	....
Hagaman, John Bartlett, Todd	1915	....
Lincoln Mem. Univ., Knoxville, 1915.		

Name and Address.	*Licensed.*	*Joined State Society.*
Jones, Thos. J., Lansing	....	....
Lincoln Memorial Univ., Knoxville, 1895.		
Jones, T. Lester, Lansing	1909	1917
Med. College of Va.		
Jones, U. G., West Jefferson	1917	1917
Lincoln Memorial Univ., 1914.		
Perkins, S. L., Jefferson	1892	....
Baltimore Medical College, 1891.		
Ray, R. C., Beaver Creek	1916	1917
Med. Coll. of Va., 1916.		
Robinson, W. J., Creston	1907	....
Univ. Med. College of Kansas City, 1904.		
Tugman, B. W., Warrensville	....	....

AVERY COUNTY SOCIETY.

President. W. C. Tate, Banner Elk	1909	1912
Tenn. Med. Coll., 1908.		
Secretary. Miles T. Long, Newland	1916	1917
Med. Coll. of Va.; N. C. Med. Coll., 1916.		
Buchanan, C. L. Plumtree	1910	1911
Tenn. Med. Coll., 1910.		
Burleson, W. B., Plumtree	1915	....
Univ. of Md. and the Coll. of P. and S., 1915.		
Hodges, J. M., Cranberry	1906	....
Univ. of Md., 1904.		
Proffit, T. J., Elk Park	1903	....
Louisville Med. Coll., 1902.		
Sloop, E. H., Crossnore	1905	1909
N. C. Med. Coll., 1905; Jeff. Med. Coll., 1908.		
Sloop, Mary M., Crossnore	1906	1913
Woman's Med. Coll. of Pa., 1906.		
Sutton, J. B., Elk Park	1909	1911
Univ. of the South, 1904.		

BEAUFORT COUNTY SOCIETY.

President	....	....
Secretary. H. W. Carter, Washington	1895	1910
Univ. of Va., 1895.		
Blount, J. G., Washington	1892	....
Bellevue Hospital Med. Coll., 1892.		
Bullock, W. J., Belhaven	....	1860
Univ. of Va., 1857; Univ. of Pa., 1858.		
Jackson, C. C., Yeatesville	1893	....
P. and S., Balt., 1893.		
Kafer, Oswald O., Edward	1905	1916
Univ. of Md., 1905.		
Nicholson, S. T. (Hon.), Washington	1885	1902
P. and S., Balt., 1881.		

Name and Address.	*Licensed.*	*Joined State Society.*
Potter, W. T., Edward	1910	1910
Med. Coll. of Va., 1910.		
Rodman, J. C., Washington	1892	1895
Bellevue Med. Coll., 1892.		
Tayloe, D. T. (Hon.), Washington	1885	1885
Bellevue Med. Coll., 1885.		
Tayloe, Josh, Washington	1892	....
Bellevue Med. Coll., 1892.		

BERTIE COUNTY SOCIETY.

President	....	....
Secretary, J. L. Pritchard, Windsor	1906	1907
P. and S., Balt., 1906.		
Evans, L. B., Windsor	1900	1907
Univ. Coll. of Med., Va., 1900.		
Sawyer, C. J., Windsor	1895	....
College of P. and S. Baltimore, 1895.		

BLADEN COUNTY SOCIETY.

President, A. B. Holmes, Council	1910	....
Jeff. Med. Coll., 1910.		
Secretary, E. S. Clark, Clarkton	1914	....
M. C. of Va., 1914.		
Bullard, G. F., Elizabethtown	1915	1916
N. C. Med. Coll., 1915.		
Clark, G. L., Clarkton	1900	1904
Univ. of N. Y., 1876.		
Cromartie, R. S., Garland	....	....
Hutchinson, S. S., Council	....	....
Lucas, W. H. G., White Oak	1885	1875
Univ. of Phila., 1870.		
Norman, J. S., Bladenboro	1911	....
Univ. of Md. and the Coll. of P. and S., Balt., 1909.		

BUNCOMBE COUNTY SOCIETY.

President, G. S. Tennent, Asheville	1894	1894
N. C. Med. Coll., 1894.		
Secretary, C. H. Cocke, Asheville	1912	1913
Cornell, 1905.		
Adams, J. L., Asheville	1910	1913
Jefferson Med. Coll., 1910.		
Ambler, C. P., Asheville	1890	1891
West. Reserv., 1889.		
Anderson, J. G., Asheville	1906	1908
Univ. of N. C., 1906.		
Archer, I. J., Black Mountain	1905	1906
Northwestern, 1896.		

Name and Address.	*Licensed.*	*Joined State Society.*
Baker, W. E., Arden	1915	1916
Chattanooga M. C., 1908.		
Battle, G. C., Asheville	1912	1912
Univ. of Md., 1912.		
Battle, S. W. (Hon.), Asheville	1887	1887
Bellevue Med. Coll., N. Y., 1875.		
Briggs, H. H., Asheville	1901	....
Yale Univ., School of Med., 1897.		
Brookshire, H. G., Leicester	1905	1906
N. C. Med. Coll., 1905.		
Brownson, W. S., Asheville	1885	1896
Univ. of N. Y., 1878.		
Buckner, J. M., Swannanoa	1909	1912
Univ. of N. C., 1908.		
Buckner, R. G., Asheville	1907	1908
Univ. of Ark., 1897.		
Calloway, A. W., Asheville	1899	1904
Chicago Med. School; Harvard Med. School, 1895.		
Cheeseborough, T. P., Asheville	1891	1899
Univ. of N. Y., 1891.		
Clemenger, F. J., Asheville	1903	1903
Univ. of Denver, Med. Dept., 1902.		
Cocke, E. R. Asheville	....	....
Cocke, J. E., Asheville	1905	1905
Louisville Med. Coll., 1905.		
Colby, C. DeW., Asheville	1909	1909
Army Med. Sc., 1895; U. of Mich., Med. Dept., 1893.		
Costello, M. J., Asheville	1909	1911
Medico-Chirurgical, Phila., 1896.		
Cotton, C. E., Black Mountain	1901	1901
Northwestern, 1889.		
Crawford, J. M., Asheville	1915	1916
Atlanta M. C., 1884.		
Denchfield, A. L., Asheville	1914	1915
U. and Bel. H., N. Y., 1905.		
Dunn, W. L., Asheville	1900	1900
Univ. of Mich., 1891.		
Eckel, O. F., Asheville	1907	1908
Med. Coll. of S. C., 1906.		
Elias, L. W., Asheville	1906	1906
Columbia Univ., 1903.		
Flack, R. E., Asheville	....	....
Fletcher, M. H. (Hon.), Asheville	1881	1881
Bellevue Med. Coll., 1881.		
Frazer, H. T., Asheville	1908	1908
Coll. Phys., N. Y., 1901.		
Gardener, G. D., Asheville	1908	1908
Lincoln Memorial, 1908.		

Name and Address.	*Licensed.*	*Joined State Society.*
Gill, J. N., Weaverville	1894	1892
Vanderbilt Univ., 1889.		
Glenn, E. B., Asheville	1896	1899
Jefferson Med. Coll., 1896.		
Greene, J. B., Asheville	1910	1911
Univ. of Va., 1893.		
Griffin, Lewis Miller, Asheville	1916	1916
Johns Hopkins Med. School, 1915.		
Griffith, F. W., Asheville	1911	1912
Johns Hopkins, 1906.		
Harris, I. A. (Hon.), Alexander	1885	1881
Jefferson Med. Coll., Phila.		
Herbert, W. P., Asheville	1910	1911
Univ. of Va., 1907.		
Hollyday, W. M., Asheville	1914	1915
Univ. of Md., 1908.		
Hunnicutt, W. J., Asheville	1908	1908
Univ. of Tenn., 1895.		
Huston, J. W., Asheville	1912	1913
Rush, Chicago, 1904.		
Ingersoll, L. M., Asheville	1915	1916
Woman's Med. Coll. of Pa., Phila., 1914.		
Johnson, Alice E., Asheville	1906	1907
Woman's Med. Coll., Pa., 1905.		
Jordan, C. S., Asheville	1891	1899
Univ. of N. Y., 1899.		
Knoefel, A. E., Black Mountain	1914	....
Univ. of Louisville, 1893.		
Lynch, J. M., Asheville	1912	1913
Univ. of Md., 1904.		
McCracken, C. M., Fairview	1896	1904
N. C. Med. Coll., 1896.		
Meriwether, B. M., Asheville	1915	1916
Univ. of Louisville, Ky., 1915.		
Minor, C. L., Asheville	1895	1895
Univ. of Va., 1888.		
Morris, E. R., Asheville	1896	1899
Louisville Med. Coll., 1896.		
Orr, C. C., Asheville	1904	1907
Univ. of Med., 1904.		
Pritchard, A. T., Asheville	1905	1906
Jefferson Med. Coll., Phila., 1905.		
Purefoy, G. W., Asheville	1884	1904
Jefferson Med. Coll., Phila., 1876.		
Rakestraw, C. M., Asheville	1914	1915
Med. Coll. of O., 1894.		
Reeves, A. F., Asheville	1909	1910
George Washington Univ., 1906.		

Name and Address.	*Licensed.*	*Joined State Society.*
Reynolds, C. V., Asheville	1895	1896
Univ. of N. Y., 1895.		
Rich, J. C., Candler	1908	1908
Univ. of Nashville, 1908.		
Ringer, P. H., Asheville	1906	1907
P. and S. N. Y., 1904.		
Russell, E. R., Asheville	1895	1898
Univ. of Md., 1895.		
Sawyer, Jas., Asheville	1897	1916
Bell. H., N. Y., 1897.		
Scruggs, W. H., Asheville	1915	1917
Univ. of Md., 1913.		
Sevier, D. E., Asheville	1895	1899
Jefferson Med. Coll., Phila., 1895.		
Sevier, J. T., Asheville	1895	1899
Jefferson Med. Coll., Phila., 1895.		
Smith, B. R., Asheville	1913	1913
Jefferson Med. Coll., Phila., 1911.		
Stevens, M. L., Asheville	1892	1893
Balt. Med. Coll., 1891.		
Terrell, A. J., Black Mountain	1908	1909
Univ. of N. C., 1908.		
Terry, P. R., Asheville	1912	1913
George Washington Univ., 1906.		
VonRuck, K., Asheville	1889	1889
Univ. of Tubingen, 1878.		
VonRuck, S. H., Asheville	1899	1902
Bellevue Med. Coll., 1899.		
Weaver, H. B. (Hon.), Asheville	1881	1881
Washington Univ., Balt., Md., 1872.		
Weaver, W. J., Asheville	1897	1915
Jefferson Med. Coll. of Phila., 1898.		
Whittington, W. P. (Hon.) Asheville	1882	1882
P. and S., Balt., 1882.		
Williams, John Hey (Hon.), Asheville	1881	1881
Med. Dept. Iowa S. Univ., 1863.		
Williams, J. R., Asheville	....	....

BURKE COUNTY SOCIETY.

President, W. R. Griffin, Morganton	1910	1913
Jefferson Med. Coll., Phila., 1910.		
Secretary, T. V. Goode, Jr., Morganton	1912	1916
Univ. Coll. of Med. Va., 1912		
Anderson, J. R., Morganton	1885	1903
Tulane Univ., 1882.		
Gayle, E. M., Morganton	1902	1912
Univ. of Va., 1902.		
Hall, J. K., Richmond, Va.	1906	1906
Jefferson Med. Coll., 1904.		

Name and Address.	*Licensed.*	*Joined State Society.*
Hennessee, E. A., Glen Alpine	1902	1904
U. S. Grant Univ., 1900.		
Houck, Albert F., Morganton	1891	1893
P. and S. Balt., 1884.		
Long, B. L., Glen Alpine	1913	1914
N. C. Med. Coll., 1913.		
McCampbell, John, Morganton	1895	1899
Balt. Med. Coll., 1894.		
Moore, D. B., Drexel	1913	1915
Univ. Coll. of Med., Va., 1913.		
Phifer, E. W., Morganton	1902	1904
N. C. Med. Coll., 1901.		
Riddle, J. B., Morganton	1904	1904
Vanderbilt Univ., 1898.		
Taylor, I. M. (Hon.), Morganton	1883	1883
P. and S., N. Y., 1882.		
Vernon, J. W., Morganton	1909	1913
Jefferson Med. Coll., Phila., 1909.		
Warlick, E. S., Morganton	1881	1903
Vanderbilt Univ., 1881.		
Watkins, F. B., Morganton	1907	1910
Jefferson Med. Coll., Phila., 1907.		

CABARRUS COUNTY SOCIETY.

President,	....	....
Secretary,	....	....
Brandon, W. D. R., Kannapolis	1914	1916
Univ. of Med., 1914.		
Bunn, J. J., Mount Pleasant	1913	1915
N. C. Med. Coll., 1912.		
Burleson, L. N., Concord, R. F. D.	1891	1894
Univ. of Md., 1891.		
Caldwell, D. G. (Hon.), Concord	1885	1885
Univ. of Md., 1885.		
Cauble, H. H., Kannapolis	1907	1910
N. C. Med. Coll., 1907.		
Earnhardt, J. M., Mt. Pleasant	1914	1915
Univ. Coll. of Med., Va., 1913.		
Flowe, B. F., Kannapolis	1914	1916
N. C. Med. Coll., 1913.		
Foil, M. A., Mount Pleasant	1891	1908
Jefferson Med. Coll., 1891.		
Gouger, G. J., Concord, R. F. D.	1891	1899
Univ. of Md., 1891.		
Grier, S. A., Harrisburg	1885	1904
Jefferson Med. Coll., 1879.		
Hartsell, J. A., Concord	1914	1916
Jefferson Med. Coll., 1912.		

Name and Address.	*Licensed.*	*Joined State Society.*
King, R. M., Concord	1903	1905
Jefferson Med. Coll., Phila., 1903.		
McFayden, P. R., Concord	1901	1904
Med. Coll. of Va., 1901.		
Patterson, J. A., Concord	1911	1912
Univ. Coll. of Med., Va., 1911.		
Pemberton, W. D. (Hon.), Concord	1887	1887
Univ. of Md., 1887.		
Pharr, T. F. (Hon.), Harrisburg	1881	1881
Bellevue Med. Coll., 1877.		
Rankin, S. W., Concord	1912	1914
Jefferson Med. Coll., Phila., 1912.		
Smoot, J. E., Concord	1894	1902
Balt. Med. Coll., 1893.		
Wadsworth, W. H., Concord	1913	1913
Jefferson Med. Coll., Phila., 1911.		
Wallace, J. W., Concord	1907	1908
N. C. Med. Coll., 1907.		

CALDWELL COUNTY SOCIETY.

President, B. G. Flowers, Granite Falls	1884	1904
Secretary, A. A. Kent, Lenoir	1885	1894
Jefferson Med. Coll., Phila., 1885.		
Carter, G. H., King's Creek	1899	1904
Univ. of N. Y., 1877.		
Coffey, L. H., Lenoir	1906	
Med. Coll. of Va., 1906.		
Corpening, O. J., Granite Falls	1906	
Univ. Coll. of Med., Richmond, 1906.		
Goodman, A. B., Lenoir	1897	1904
N. C. Med. Coll., 1898.		
Moore, J. C., Mortimer	1907	
Univ. Coll. of Med., Richmond, 1907.		
Pitts, W. I., Lenoir	1911	
Univ. of the South, Sewanee, 1903.		
Storie, J. G., Proctor	1898	1908
Tenn. Med. Coll., 1898.		
Wilson, C. L., Lenoir	1903	1905
U. S. Grant Univ., 1903.		

CARTERET COUNTY SOCIETY.

President,		
Secretary, K. P. B. Bonner, Morehead City	1905	1905
Med. Coll. of Va., 1905.		
Ball, M. W., Newport	1911	1913
Atlanta School of Med., 1909.		
Davis, J. J., Beaufort	1891	
Univ. of Md., 1891.		

Name and Address.	*Licensed.*	*Joined State Society.*
Maxwell, C. S., Beaufort	1899	1903
Univ. of the South, 1901.		
Reed, D. H., Beaufort,		
Royall, B. F., Morehead City	1909	1909
Jefferson Med. Coll., Phila., 1909.		
Willis, W. M., Morehead City	1915	
Med. Coll., Va., 1914.		

CASWELL COUNTY SOCIETY.

President,		
Secretary, S. A. Malloy, Yanceyville	1898	1903
Ky. Sch. Med., 1897.		

CATAWBA COUNTY SOCIETY.

President, F. L. Herman, Conover	1892	1892
Louisville Med. Coll., 1893.		
Secretary, T. W. Long, Newton	1885	1915
N. Y. U., 1885.		
Bandy, W. G., Maiden	1912	1914
Med. Dept. Vanderbilt Univ., 1908.		
Blackburn, T. C., Hickory	1896	
Balt. Med. Coll., 1896.		
Campbell, J. R., Newton	1885	1898
U. of Md., 1876.		
Foard, Frank, Hickory, R. F. D.,		
Foard, Fred., Hickory, R. F. D.		
Housacker, Charles G., Hickory	1913	1915
N. C. Med. Col., 1913.		
Long, Fredk. Y., Catawba	1898	1898
Balt. Med. Coll.; N. C. Med. Coll.		
Menzies, H. C., Hickory	1894	1899
N. C. Med. Coll., 1894.		
Rowe, H. E., Newton	1905	
N. C. Med. Coll., Charlotte, 1905.		
Shipp, G. W., Newton	1911	
Univ. of Md., and the Coll. of P. & S., Balt., 1910.		
Shipp, W. T., Newton	1897	1897
Hospital Coll. of Med., Louisville, Ky., 1897.		
Shuford, J. H., Hickory	1902	1902
Mich. U., 1901.		
Steele, E. S., Hickory	1913	1915
Med. Coll., Va., 1913.		
Stevenson, T. F., Hickory	1893	
Louisville Med. Coll., 1893.		
Stewart, J. J., Conover	1904	1915
N. C. Med. Coll., 1904.		
West, G. H., Newton	1880	1880
N. Y. U., 1873.		

CHATHAM COUNTY SOCIETY.

Name and Address.	*Licensed.*	*Joined State Society.*
President, B. H. Hackney, Bynum Tulane Univ., 1911.	1911	1912
Secretary, H. T. Chapin, Pittsboro Louis. Med. Coll., 1886.	1886	1886
Burns, W. M. Goldston P. & S., Balt., 1878.	1885	
Denson, H. A., Bennett Coll. P. & S., Indianapolis, Ind., 1887.	1913	1887
Edwards, J. D., Siler City, Louisville Med. Coll., Louisville, 1887.		
Farthing, L. E., Pittsboro Univ. of N. C., 1906.	1906	1906
Laster, P. D., Monsure, R. F. D. 1 Louis, Med. Coll., 1875.	1885	1890
McManus, W. L., Bonlee Atlanta School of Med., 1906.	1912	
Milliken, Jas. S., Moncure Jefferson Med. Coll. of Phila., 1915.	1915	
Stroud, O. B., Ore Hill P. and S., Balt., 1877.	1888	1892
Wrenn, Frank, Siler City Jefferson Med. Coll. of Phila., 1912.	1912	

CHEROKEE COUNTY SOCIETY.

President, B. G. Webb, Andrews Louisville Med. Coll., 1885.	1885	1885
Secretary, J. E. Tidwell, Andrews Chattanooga Med. Coll., 1903.	1914	1915
Adams, N. B., Murphy Tenn. Med. Coll., 1896.	1909	1909
Herbert, F. L., Andrews Lincoln Mem. Univ., Knoxville, 1904.	1912	
Highway, S. C., Murphy Med. Coll. of Ohio, 1855.	1898	1898
Hill, J. N., Murphy Univ. of Louisville, 1909.	1909	1909
McKaig, F. T., Andrews Alabama Med. Coll., 1890.	1906	1906
Meroney, B. B., Murphy Gate City Med. Coll., Texas, 1906.	1908	1908
Morrow, W. C., Andrews Atlanta School of Med., 1907.	1909	1909
Orr, C. V., Andrews Univ. of Louisville, 1909.	1909	1909
Wilkes, Grove, Haw River N. C. Med. Coll., Charlotte; Richmond, Va., 1916.	1916	1917

CHOWAN-PERQUIMANS COUNTY SOCIETY.

Name and Address.	*Licensed.*	*Joined State Society.*
President, Thos. A. Cox, Hertford Univ. of Md., 1892.	1907	
Secretary, R. W. Smith, Hertford Univ. of Md., 1892.	1872	
Mitchener, James Samuel, Edenton Johns Hopkins Univ., Balt., 1915.	1915	

CLEVELAND COUNTY SOCIETY.

President, W. F. Mitchell, Shelby Univ. of Md., 1890.	1900	1904
Secretary, J. Y. Hamrick, Boiling Springs Coll. P. & S., N. Y., Columbia Univ., 1915.	1915	1917
Aydlette, J. P., Earls Ky. Univ., 1901.	1903	1904
Champion, C. O., Mooresboro Atlanta Med. Coll., 1877.	1902	1904
Ellis, R. C., Shelby Balt. Univ. School of Med., 1886.		1904
Gold, T. B., Lawndale Charlotte Med. Coll., 1911.	1911	1914
Hamrick, T. G., Shelby P. and S., Balt., 1895.	1895	1904
Houser, E. A., Fallston Balt. Univ., 1902.	1902	1904
Hunt, J. F., Casar Univ. of Tenn., Memphis, 1900.	1900	
Lattimore, E. B., Shelby Bellevue Med. Coll., 1898.	1896	1904
Lee, L. V., Lattimore Atlanta Med. Coll., 1894.	1897	1904
McBrayer, T. E., Shelby P. and S., Balt., 1879.	1885	1904
Oats, Geo., Grover Univ. of Louisville, 1871.	1894	
Palmer, B. H., Shelby Louisville Med. Coll., 1896.	1898	1904
Royster, S. S., Shelby Tenn. Med. Coll., 1890.	1896	1904
Wood, J. W., Shelby, R. F. D. Louisville Med. Coll., Louisville, 1892.	1903	

COLUMBUS COUNTY SOCIETY.

President, R. B. Whitaker, Whiteville Univ. Coll. of Med., Va., 1912.	1912	1912
Secretary, Ralph C. Sadler, Whiteville N. C. Med. Coll., 1912.	1912	1912

Name and Address.	*Licensed.*	*Joined State Society.*
Cox, Grover S., Tabor	1911	
N. C. Med. Coll., Charlotte, 1911.		
Floyd, A. G., Fair Bluff	1887	1904
Univ. of Md., 1885.		
Maxwell, H. B., Whiteville	1902	1902
Univ. of Md., 1902.		
Moore, T. V., Acme	1901	1901
Balt. Med. Coll., 1901.		
Smith, W. F., Chadbourn	1904	1904
N. C. Med. Coll., 1904.		

CRAVEN COUNTY SOCIETY.

President,		
Secretary, G. A. Caton, New Bern	1898	1904
Med. Coll. of Va., 1898.		
Bonner, H. M., New Bern	1897	
Med. Coll. of Va., 1897.		
Duffy, Leinster, New Bern	1888	1888
P. and S., Balt., 1889.		
Duffy, R. N., New Bern	1907	1907
Johns Hopkins, 1906.		
Duguid, James A., Vanceboro	1905	
N. C. Med. Coll., 1905.		
Gibbs, N. M., New Bern	1895	
Univ. of Md. and the Coll. of P. & S., Balt., 1896.		
Jones, R. D., New Bern	1897	1897
Univ. of Md., 1896.		
Patterson, J. F., New Bern	1906	1906
Jefferson Med. Coll., Phila., 1906.		
Pollock, Raymond A., New Bern	1900	
Jefferson Med. Coll. of Philadelphia, 1899.		
Primrose, R. S., New Bern	1890	1896
Bellevue Med. Coll., 1889.		
Rhem, J. F., New Bern	1893	1893
Bellevue Med. Coll., 1894.		

CUMBERLAND COUNTY SOCIETY.

President, R. L. Pittman, Fayetteville	1910	1910
Univ. of Md., 1906.		
Secretary, M. L. Smoot, Fayetteville	1903	1904
Univ. Coll. of Med., Va., 1903.		
Allgood, R. A., Fayetteville	1915	
Univ. of Md. and Coll. of P. & S., Balt., 1912.		
Averitt, K. G., Cedar Creek	1893	1902
Balt. Med. Coll., 1893.		
Bullock, T. C., Autryville	1885	1904
P. and S., Balt., 1885.		
Greenwood, A. B., Fayetteville	1916	1917
Johns Hopkins Univ. Medical School, 1916.		

Name and Address.	*Licensed.*	*Joined State Society*
Highsmith, J. F., Fayetteville	1889	1893
Jefferson Med. Coll., Phila., 1889.		
Highsmith, Seavy, Fayetteville	1901	1901
Univ. Coll. of Med., Va., 1901.		
Jordan, W. S., Fayetteville	1906	1906
Univ. of N. C., Med. Dept., 1906.		
Lilly, J. M., Fayetteville	1903	1904
Univ. Coll. of Med., Va., 1903.		
McGougan, James Vance, Fayetteville	1893	
Univ. of Md. and Coll. of P. & S., Balt., 1893.		
MacKethan, D. G., Fayetteville	1899	1899
Univ. Coll. of Med., Va., 1899.		
MacKethan, J. A. Fayetteville	1901	1901
N. C. Med. Coll., 1901.		
McNeill, J. W. (Hon.), Fayetteville	1876	1876
Bellevue Med. Coll., 1876.		
Olive, P. W., Wade	1907	1908
P. and S., Balt., 1907.		
Rose, A. S., Fayetteville	1901	1904
Univ. Coll. Med., Va., 1901.		
West, T. M., Fayetteville	1910	1910
Univ. of Md., 1908.		

CURRITUCK COUNTY SOCIETY.

President, Stuart Mann, Moyock	1895	
P. and S., Balt., 1895.		
Secretary, Julian D. Maynard, Knott's Island	1908	1908
Univ. of N. C., 1908.		
Caldwell, W. H., Snowden		
Griggs, W. T., Poplar Branch	1896	1901
Univ. of Va., 1896.		
Newbern, John M., Jarvisburg	1899	
Georgetown Univ., Washington, 1898.		
Ritter, F. W., (Hon.), Moyock	1885	

DARE COUNTY SOCIETY.

(See Pasquotank-Camden-Dare.)

DAVIDSON COUNTY SOCIETY.

President, J. W. Peacock, Thomasville	1901	
Tulane Univ. of La., New Orleans, 1901.		
Secretary, E. F. Long, Denton	1909	1909
Med. Coll. of Va., 1909.		
Anderson, Abel, Denton.		
Bowers, M. A., Thomasville	1911	
Tulane Univ., 1911.		
Buchanan, E. J., Lexington	1892	1900
Univ. of Md., 1892.		

Name and Address.	*Licensed.*	*Joined State Society.*
Cathell, E. J., Lexington	1902	1910
Univ. of Md., 1899.		
Clodfelter, C. M., Lexington	1905	1905
P. and S., Balt., 1905.		
Hill, D. J., Lexington	1893	1894
P. and S., Balt., 1893.		
Hill, W. L., R. F. D. 4, Lexington	1893	
Coll. of P. & S., Balt., 1893.		
Hobgood, James Edw., Thomasville	1907	
Jeff. Med. Coll. of Philadelphia, 1907.		
Julian, C. A., Thomasville	1891	1893
Louisville Med. Coll., 1888.		
Mock, Frank Lowe, Lexington, R. F. D. 3.	1908	
N. C. Med. Coll., Charlotte, 1908.		
Phillips, Clyde C., Wallburg	1912	
N. C. Med. Coll., Charlotte, 1912.		
Sharpe, Chas. Ray, Lexington	1914	
Jeff. Med. Coll. of Phila., 1914.		
Smith, J. A., Lexington	1915	
N. C. Med. Coll., Charlotte, 1915.		
Terry, Jarvis Russell, Lexington	1912	
Univ. of Louisville, Louisville, 1911.		
Vestal, W. J., Lexington	1885	1893
P. & S., Balt., 1883.		
Yokeley, R. V., Lexington	1911	
N. C. Med. Coll., 1911.		
York, Alexander Arthur, Linwood, R. F. D. 2	1907	
Chattanooga Med. Coll., 1907.		
Zimmerman, R. U., Lexington, R. F. D. 4	1901	
N. C. Med. Coll., Charlotte, 1901.		

DAVIE COUNTY SOCIETY.

President, A. B. Byerly, Cooleemee	1896	1904
U. C. of M., Va., 1896.		
Secretary, W. P. Spears, Cooleemee	1911	1912
U. C. of M., Va., 1911.		
Martin, W. C., Mocksville	1888	1904
P. and S., Balt., 1888.		
Nicholson, C. R., Harmony	1912	
N. C. Med. Coll., 1912.		
Rodwell, J. R., Mocksville	1895	1896
P. & S., Balt., 1895.		

DUPLIN COUNTY SOCIETY.

President, J. W. Carroll, Wallace	1903	1903
Univ. of Md., 1903.		
Secretary, J. M. Williams, Warsaw	1902	1902
Univ. of Md., 1902.		

Name and Address.	*Licensed.*	*Joined State Society.*
Carr, R. L., Rose Hill	1908	
Balt. Med. Coll., 1907.		
Crocker, W. D., Warsaw	1896	1896
Louisville Med. Coll., 1897.		
Farrior, James W., Kenansville	1913	
Univ. of Pa., Philadelphia, 1912.		
Landen, J. F., Chinquapin	1905	
U. C. of Med., Va., 1905.		
Maxwell, J. F., Pine Hill		
Quinn, Robt. F., Magnolia	1913	
N. C. Med. Coll., 1912.		
Robinson, J. D., Wallace		
Williams, R. C., Wallace	1915	
Univ. of Md., 1912.		

DURHAM-ORANGE COUNTY SOCIETY.

President, S. D. McPherson, Durham	1903	1903
Univ. of Md., 1903.		
Secretary, T. C. Kerns, Durham	1911	1912
Univ. of Pa., 1911.		
Abernethy, E. A., Chapel Hill	1901	1905
Med. Coll. of Va., 1901.		
Adams, C. A., Durham	1892	1892
Coll. of P. and S., Balt., 1892.		
Atkins, M. T., Durham	1915	
Johns Hopkins, 1907.		
Bitting, N. D., Durham	1907	1908
Jefferson, Med. Coll., Phila., 1907.		
Boddie, N. P., (Hon.), Durham	1883	1883
P. and S., Balt., 1883.		
Booker, L. S. Durham	1910	1910
Univ. Coll. of Med., Va., 1908.		
Boone, W. H., Durham	1902	1902
N. C. Med. Coll., 1902.		
Bowling, E. H., Durham	1890	1906
P. and S., Balt., 1891.		
Boyles, A. C., Durham	1887	1887
Univ. of Md., 1887.		
Brooks, B. U., Durham	1905	1905
Univ. of Md., 1905.		
Bullitt, J. B., Chapel Hill	1914	1914
Univ. of Va., 1897.		
Cheatham, Arch, Durham	1888	1888
Univ. of Md., 1888.		
Fassett, B. W., Durham	1899	1903
Balt. Med. Coll., 1898.		
Felts, R. L., Durham	1901	1901
Univ. of Md., 1898.		

Name and Address.	*Licensed.*	*Joined State Society.*
Graham, Jos., Durham	1901	1901
Univ. of Pa., 1901.		
Hayes, R. B., Hillsboro	1910	1910
Univ. of Md., 1906.		
Hicks, C. S., Durham	1904	1904
Univ. of Md., 1904.		
Hicks, W. N., Durham	1885	1885
Med. Coll. of Va., 1864.		
Hill, C. D., Durham	1912	1912
Univ. of Va., 1888.		
Holloway, Oscar Woods, Northside, R. F. D. 1	1901	
Med. Coll. of Va., Richmond, 1901.		
Holloway, R. L., West Durham	1893	1893
Med. Coll. of Va., 1893.		
Johnson, N. M., (Hon.), Durham	1879	1879
P. and S., Balt., 1877.		
Jordan, A. C., Durham	1885	1904
P. and S., Balt., 1881.		
King, M. N., Durham	1910	1910
Univ. of Md., 1898.		
Lloyd, B. B., Chapel Hill	1909	1914
Univ. of N. C., 1909.		
Lyon, E. H., Bahama	1904	1911
Univ. of Md., 1904.		
MacNider, W. deB., Chapel Hill	1902	1902
Univ. of N. C., 1902.		
Manning, I. H., Chapel Hill	1899	1899
Long Island College Hospital, Brooklyn, 1897.		
Manning, J. M., Durham	1897	1897
Bellevue Med. Coll., 1897.		
Nichols, R. E., Gorman	1890	1904
Va. Med. Coll., Richmond, Va.		
Olive, W. W., Durham	1907	1908
Univ. of Md., 1906.		
Roberson, Foy, Durham	1909	1912
Jeff. Med. Coll., 1909.		
Roberson, Mike, Durham	1912	
Med. Coll. of Va., Richmond, 1912.		
Ross, G. H., East Durham	1899	1899
Univ. of Tenn., 1899.		
Speed, Joseph Anderson, Durham	1914	
Jeff. Med. Coll., 1914.		
Sterrett, J. R., West Durham	1913	
Univ. Coll. of Med., Va., 1908.		
Sweeney, John, Durham	1888	
P. and S., Balt., 1886.		
Teague, R. J., Roxboro	1890	
Univ. of Md. and Coll. of P. and S., Balt., 1890.		

Name and Address.	*Licensed.*	*Joined State Society.*
Warren, A. J., Hillsboro	1914	
Tulane, 1914.		
Watkins, G. T., Durham	1915	1916
Jefferson Med. Coll., Phila., 1915.		
Webb, L. H., Chapel Hill	1910	
Jefferson Med. Coll., Phila., 1910.		
Woodard, C. A., Durham	1904	1907
Univ. Va., 1904.		

EDGECOMBE COUNTY SOCIETY.

President,		
Secretary, J. C. Raby, Leggett	1911	1911
Univ. Coll. of Med., Va., 1911.		
Baker, J. M. (Hon.), Tarboro	1879	1879
Univ. of Md., 1879.		
Green, W. W., Tarboro	1908	1908
Univ. of N. C., 1908.		
Harrell, S. N., Tarboro	1897	1897
Univ. of Md., 1897.		
Mitchell, G. W., Macclesfield	1913	1913
Univ. Coll. of Med., Richmond, 1908.		
Royster, T. H., Tarboro	1908	1908
Univ. of Md., Richmond, 1908.		
Speight, R. H., Sr. (Hon.), Whitakers, R. F. D. 1	1875	1875
Univ. of Md., 1870.		
Staton, L. L. (Hon.), Tarboro	1870	1900
Univ. of N. Y., 1870.		
Thigpen, W. J., Tarboro	1900	1900
Jefferson Med. Coll., Phila., 1900.		
Wooten, A. M., Pinetops	1910	1910
Univ. of N. C., 1910.		

FORSYTH COUNTY SOCIETY.

President, W. M. Johnson, Winston-Salem	1908	1910
Jeff. Med. Coll., Phila., 1908.		
Secretary, W. L. Grimes, Winston-Salem	1910	1915
Johns Hopkins Med. School, 1910.		
Belton, J. F., Winston-Salem	1914	1915
Univ. of Penna., 1914.		
Bynum, John, Winston-Salem	1892	1900
Univ. of N. Y., 1892.		
Bynum, W. H., Germanton	1900	1900
Univ. Coll. of Med., Va., 1900.		
Chaney, T. M., Winston-Salem	1908	1908
Univ. of Md., 1906.		
Craig, S. D., Winston-Salem	1908	1911
Tulane University, 1908.		

Name and Address.	*Licensed.*	*Joined State Society.*
Dalton, D. N., Winston-Salem	1885	1886
Univ. of N. Y., 1881.		
Dalton, W. N., Winston-Salem	1904	1915
N. C. Med. Coll., Charlotte, 1904.		
Davis, T. W., Winston-Salem	1900	1901
Med. Coll. of S. C., 1898.		
Dowdy, G. E., Winston-Salem	1909	1909
Univ. of Md., 1909.		
Edwards, A. D., Winston-Salem	1904	1904
Univ. of Md., 1903.		
Fearington, J. P., Winston-Salem	1887	1904
Univ. of Md., 1887.		
Flynt, S. S., Rural Hall	1890	1906
P. and S., Baltimore, 1889.		
Gray, E. P., Winston-Salem	1907	1907
Johns Hopkins Med. School, 1906.		
Hammock, J. C., Walkertown	1895	1905
P. and S., Balt., 1895.		
Hanes, F. M., Winston-Salem.		
Hege, J. R., Clemmons	1916	1917
Univ. of N. C.; Univ. of Md., 1916.		
Izlar, H. L., Winston-Salem	1916	1916
Med. Coll. of the State of S. C., 1915.		
Jewett, R. D., Winston-Salem	1890	1890
Univ. of Va., 1888.		
Kapp, Henry Herman, Winston-Salem	1901	1904
Jeff. Med. Coll., Phila., 1901.		
Keiger, O. R., Winston-Salem	1911	1914
Univ. Coll. of Med., Richmond, Va., 1911.		
Lawrence, C. S., Winston-Salem	1908	1908
George Washington Univ., 1908.		
Linville, A. Y., Winston-Salem	1889	1889
Univ., of N. Y., 1889.		
Lockett, E. A., Winston-Salem	1903	1903
Univ. of Pa., 1902.		
Long, V. M., Winston-Salem	1906	1906
N. C. Med. Coll., 1906.		
Lott, H. S., Winston-Salem	1887	1887
Univ. of Georgia, 1884.		
Mimms, C. W., Winston-Salem	1916	1916
Vanderbilt Univ., Univ. of Louisville, Ky., 1914.		
Pepper, J. K., Winston-Salem	1908	1908
P. and S., Baltimore.		
Perkins, J. R., Winston-Salem	1904	1917
Med. Coll. of Va., 1904.		
Pfohl, S. F., Winston-Salem	1898	1898
Univ. of Pa., 1894.		
Salmons, L. R., Winston-Salem	1912	1912
N. C. Med. Coll., 1912.		

Name and Address.	*Licensed.*	*Joined State Society.*
Schallert, P. O., Winston-Salem	1904	1904
Univ. of Ill., Med. Dept., 1904.		
Schaub, O. P., Winston-Salem	1898	1898
Balt., Med. Coll., 1898.		
Spainhour, E. H., Winston-Salem	1898	1898
Baltimore Med. Coll., 1898.		
Spencer, W. O., Winston-Salem	1891	1894
Jeff. Med. Coll., Phila., 1891.		
Strickland, E. F., Bethania	1887	1903
Univ. of N. Y., 1887.		
Summers, C. L., Winston-Salem	1892	
Univ. of Md. & the Coll. of P. & S., Balt., 1887.		
Thames, John, Winston-Salem	1894	1895
Louisville Med. Coll., 1894.		
Valk, A. DeT., Winston-Salem	1913	1913
Johns Hopkins Med. School, 1910.		
Wall, R. L., Winston-Salem	1907	1907
Jeff. Med. Coll., Phila., 1906.		
Whittington, J. B., Winston-Salem	1911	1911
N. C. Med. Coll., 1911.		
Wiggins, John Carroll, Winston-Salem	1910	
Univ. of Pa., School of Med., Philadelphia, 1910.		
Wooding, C. E., Winston-Salem	1915	1915
Univ. of Va., 1905 (Temp.).		
Wyatt, Wortham, Winston-Salem	1913	1915
Univ. of Pa., 1913.		

FRANKLIN COUNTY SOCIETY.

President, R. F. Yarborough, Louisburg	1899	1899
Columbia Univ., D. C., 1898.		
Secretary, E. M. Penny, Louisburg	1908	
P. and S., Balt., 1907.		
Burt, S. P., Louisburg	1896	1904
P. and S., Balt., 1896.		
Harris, J. H., Franklinton	1886	1904
Bellevue Med. Coll., 1886.		
Henderson, R. B., Franklinton	1887	1904
Univ. of Md., 1887.		
Johnson, B. C., Bunn	1910	1910
Univ. of N. C., 1909.		
Malone, J. E., Louisburg	1885	1904
Bellevue Med. Coll., 1875.		
Newell, H. A., Louisburg	1906	1906
P. and S., Balt., 1906.		
Newell, J. O., Henderson, R. F. D. 6	1910	1910
P. and S., Balt., 1910.		
Perry, H. G., Wood	1915	
Coll. of P. and S., Balt., 1915.		

GASTON COUNTY SOCIETY.

Name and Address.	*Licensed.*	*Joined State Society.*
President, Anders, McT. G., Gastonia	1902	1902
Med. Coll. of Va., 1901.		
Secretary, H. F. Glenn, Gastonia	1900	1904
P. and S., Atlanta, 1900.		
Adams, C. E., Gastonia	1885	1904
Univ. of Md., 1878.		
Anderson, J. A., McAdenville	1909	1909
Univ. of Ga., 1899.		
Anthony, J. E., King's Mountain	1911	1911
Univ. of Tenn., 1911.		
Caldwell, J. M., Gastonia	1885	1916
S. C. Med. Coll., 1885.		
Davis, W. W., Belmont	1885	
Kentucky School of Med., Louisville, 1875.		
Eddleman, H. M., Gastonia	1886	1904
Ky. School of Med., 1886.		
Garrison, D. A., Gastonia	1896	1899
Louisville Med. Coll., 1896.		
Glenn, L. N., Gastonia	1897	1897
Univ. of Md.. 1897.		
Hunter, M. C., Huntersville	1882	1904
P. and S., Balt., 1882.		
Jenkins, John H., Gastonia	1888	
Ky. School of Med.. Louisville, 1887.		
McAdams, C. R., McAdenville	1912	
N. C. Med. Coll., 1912.		
McCombs, C. J., Gastonia	1905	1908
N. C. Med. Coll., 1905.		
McCoy, T. M., Mt. Holly	1906	1907
N. C. Med. Coll., 1905.		
Patrick, L. N., Gastonia	1910	1913
Univ. of Md., 1910.		
Puett, B. V., Dallas	1909	1910
Woman's Med. Coll., Balt., 1909.		
Pugh, Chas. Harrison, Stanley	1910	
N. C. Med. Coll., Charlotte, 1910.		
Quickel, T. C., Gastonia	1899	1904
Tulane Univ., 1900.		
Reid, J. W., Lowell	1909	1909
Jefferson Med. Coll., Phila., 1909.		
Reid, R. M., Gastonia	1890	1903
Univ. of N. Y., 1890.		
Rhyne, R. E., Mt. Holly	1907	1908
N. C. Med. Coll., 1907.		
Robinson, Frank, Lowell	1878	1904
Louisville Med. Coll., 1878.		
Rowe, R. H., Bessemer City	1912	1915
Univ. of Louisville, 1912.		

Name and Address.	*Licensed.*	*Joined State Society.*
Sloan, J. M., Gastonia	1891	1904
Louisville Med. Coll., 1891.		
Wilkins, S. A., Dallas	1903	1903
Univ. of Ky., 1902.		
Wilson, F. G., Gastonia	1896	1899
Univ. of Md., 1896.		

GRANVILLE COUNTY SOCIETY.

President, G. T. Sikes (Hon.), Grissom	1884	1884
Univ. of Md., 1883.		
Secretary, W. N. Thomas, Oxford	1911	
Med. Coll. of Va., 1911.		
Booth, T. L., Oxford	1885	
Med. Coll. of S. C., 1883.		
Bullock, W. B., Hester	1892	
Bellevue Med. Coll., 1892.		
Cannady, S. H., Oxford	1889	
Univ. of Va., 1887.		
Daniel, N. C., Oxford	1895	
N. C. Med. Coll., 1895.		
Hardee, P. R., Stem	1885	1885
P. and S., Balt., 1885.		
Hays, B. K., Oxford	1894	1896
Univ. Coll. of Med., Va., 1894.		
Hester, J. R., Oxford, R. F. D.		
Meadows, E. B., Oxford	1901	1901
Univ. Coll. of Med., Va., 1901.		
Morris, J. A., Oxford, R. F. D. 2	1893	1893
Vanderbilt Univ., 1890.		
Sanderford, J. F., Creedmoor	1890	1891
P. and S., Balt., 1890.		
Taylor, W. L., Stovall	1900	1900
Univ. of Va., 1900.		
Thompson, Jos., Creedmoor	1908	
Kentucky Univ., Louisville, 1904.		
Uhls, Russell, T., Hester,		
Watkins, G. S., Oxford	1900	
Univ. Coll. of Med., Va., 1900.		

GREENE COUNTY SOCIETY.

President, W. B. Murphy, Snow Hill	1903	1903
Univ. Coll. of Med., Va., 1903.		
Secretary, G. C. Edwards, Hookerton	1883	1883
Bellevue Med. Coll., 1883.		
Carroll, John L., Hookerton	1905	
Louisville Med. Coll., 1905.		

Name and Address.	*Licensed.*	*Joined State Society.*
Harper, J. H., Snow Hill	1906	1906
Jefferson Med. Coll., Phila., 1906.		
Whittington. W. W., Snow Hill	1895	1898
Louisville Med. Coll., 1895.		

GUILFORD COUNTY SOCIETY.

President, H. W. McCain, High Point	1909	1911
Univ. of Md., 1909.		
Secretary, Schoonover, R. A., Greensboro	1906	1912
Univ. of Md., 1905.		
Ashworth, W. C., Greensboro	1892	1892
P. and S., Balt., 1892.		
Austin, J. W., High Point	1910	1913
Jefferson Med. Coll., Phila., 1910.		
Banner, C. W. Greensboro	1899	1901
Univ. of Md., 1899.		
Battle, J. T. J., Greensboro	1884	1889
P. and S., Balt., 1884.		
Beall, L G., Greensboro	1906	1906
N. C. Med. Coll., 1906.		
Beall, W. P. (Hon.), Greensboro	1879	1879
Jefferson Med. Coll., 1879.		
Bowman, H. P., Greensboro	1894	
Univ. of Tenn., 1894.		
Boyles, J. H., Greensboro	1903	1903
P. and S., Balt., 1903.		
Braddy, W. H., Greensboro	1909	1913
Univ. of N. C., 1909.		
Burrus, J. T., High Point	1898	1898
Balt. Med. Coll., 1901.		
Coe, S. S., High Point	1912	1912
Univ. Coll. of Med., Va., 1911.		
Cole, W. F., Greensboro	1909	1909
Johns Hopkins, 1909.		
Dees, R. E., Greensboro	1908	1908
Univ. of Md., 1906.		
Dees, R. O., Greensboro	1906	1907
Univ. of Md., 1906.		
Dick, J. V., Gibsonville	1907	1908
Univ. of N. C., 1907.		
Dodson, H. H., Greensboro	1885	1886
Med. Coll. of Va., 1882.		
Fortune, A. F., Greensboro	1900	1904
Univ. Coll. of Med., Va., 1900.		
Gilmer, C. S., Greensboro, R. F. D. 6.	1891	1894
Univ. of N. Y., 1891.		
Gordon, J. R., Raleigh	1891	
Univ. of N. Y., 1891.		

Name and Address.	*Licensed.*	*Joined State Society.*
Gove, Anna M., Greensboro	1894	1894
Woman's Med. Coll., N. Y., 1892.		
Grayson, C. S., High Point	1907	1908
George Washington Univ., 1906.		
Harrison, Edmund, Greensboro	1900	1900
Univ. of Md., 1896.		
Hiatt, H. B., High Point	1907	
Univ. of Md., 1907.		
Hilton, J. J., Greensboro	1889	1904
Univ. of Md., 1886.		
Holt, W. T., McLeansville	1890	1890
Univ. of Tenn., 1890.		
Hyatt, F. C., Greensboro	1907	1907
Jefferson Med. Coll., Phila., 1907.		
Jackson, W. L., High Point	1912	1913
N. C. Med. Coll., 1912.		
Jarboe, Parran, Greensboro	1906	1906
Georgetown Univ., 1905.		
Jones, William M., Greensboro	1903	1903
Univ. of Md., 1903.		
Knight, W. P., Greensboro	1898	1898
Balt., Med. Coll., 1898.		
Long, J. W. (Hon.), Greensboro	1884	1884
Vanderbilt Univ., 1884.		
McAnally, W. J., High Point	1896	1899
Balt. Med. Coll., 1897.		
Mann, I. T., High Point	1912	
Jeff. M. C. of Phila., 1912.		
Meadows, W. J., Greensboro	1889	1904
Med. Coll. of Ala., 1894.		
Mebane, W. N., Greensboro	1908	
Geo. Washington Univ. Med. School, 1906.		
Michaux, E. R., Greensboro	1889	1904
Univ. of N. Y., 1889.		
Miles, Mary S., Greensboro	1904	1905
Laura Memorial Woman's Med. Coll., Cinn., O., 1898.		
Moore, Charles E., Greensboro	1909	
Jefferson Med. Coll., Phila., 1907.		
Moseley, C. W., Greensboro	1893	1896
Balt. Med. Coll., 1893.		
Norman, G. W., Greensboro	1896	1896
Balt. Med. Coll., 1896.		
Ogburn, H. H., Greensboro	1913	
Johns Hopkins Univ., 1913.		
Oliver, A. S., Greensboro.		
Pate, F. J., Greensboro	1908	
Univ. of Md., and the Coll. of P. and S., Balt., 1908.		
Reaves, C. R., Greensboro	1914	1914
Univ. of the South, 1906.		

Name and Address.	*Licensed.*	*Joined State Society.*
Reaves, W. P., Greensboro	1905	
Univ. of the South, 1903.		
Reitzel, C. E., High Point	1902	1902
P. and S., Atlanta, 1902.		
Richardson, W. J., Greensboro	1889	1901
Jefferson Med. Coll., Phila., 1869.		
Rieves, J. T., Greensboro	1891	1892
Louisville Med. Coll., 1891.		
Roberson, Charles, Greensboro	1897	
Long Island College Hospital, 1897.		
Roberson, G. B., Greensboro.		
Smith, A. T., Greensboro	1910	1913
Med. Coll. of Va., 1908.		
Smith, Owen H., High Point	1905	1905
Jeff. Med. Coll., Phila., Pa., 1904.		
Spoon, O. A., Greensboro	1908	
N. C. Med. Coll., 1908.		
Stanton, D. A., High Point	1887	1894
Vanderbilt Univ., 1887.		
Stanton, T. M., High Point.		
Starr, H. F., Greensboro	1916	1916
Jeff. Med. Coll., 1916.		
Taylor, F. R., High Point	1913	
Univ. of Pa., 1913.		
Turner, J. P., Greensboro	1897	1904
Univ. of Md., 1896.		
Tyson, T. D., Pleasant Garden	1899	
Univ. Coll. of Med., Va., 1899.		
Walker, J. B., Gibsonville	1914	
Med. Coll. of Va., 1914.		
Whitaker, A. C., Julian	1903	
Univ. of Tenn., 1903.		
Williams, B. B., Greensboro	1886	
Univ. of Md., 1883.		
Williams, J. A., Greensboro	1898	1898
Univ. of Va., 1898.		
Williams, John D., Guilford	1898	
Vanderbilt Univ., 1898.		
Wilson, A. R. (Hon.), Greensboro	1882	
Jefferson Med. Coll., Phila., 1882.		
Wilson, N. G., Summerfield	1914	
N. C. Med. Coll., 1914.		

HALIFAX COUNTY SOCIETY.

President, A. S. Harrison, Enfield	1888	1888
Univ. of Md., 1888.		
Secretary, T. W. M. Long, Roanoke Rapids	1909	
Univ. Coll., of Med., Va., 1908.		

Name and Address.	*Licensed.*	*Joined State Society.*
Beckwith, R. P., Rosemary	1913	
Univ. of Pa., 1911.		
Jarman, F. G., Rosemary	1914	
Univ. Coll. of Med., Va., 1911.		
Leggett, K., Hobgood	1885	1885
Ky. School of Med., 1884.		
Patchin, Daniel Frank, Roanoke Rapids		
Univ. and Bellevue Hospital Med. Coll., N. Y., 1913.		
Register, F. M., Tillery	1801	1904
Kentucky School of Med., 1893.		
Smith, Oscar F., Scotland Neck	1899	1899
Univ. Coll. of Med., Va., 1899.		

HARNETT COUNTY SOCIETY.

President, J. W. Halford, Lillington	1905	1905
Columbia Univ., 1904.		
Secretary, F. R. Ruff, Duke	1915	
Univ. Coll. of Med., Va., 1913.		
Arnold, L. J., Lillington	1905	1905
N. C. Med. Coll., 1905.		
Barefoot, M. L., Dunn	1911	1912
Univ. of Md., 1911.		
Coltrane, Wallace Early, Dunn	1913	
Med. Coll. of Va., Richmond, 1912.		
Hicks, I. F., Dunn	1902	1904
N. C. Med. Coll., 1902.		
Highsmith, Charles, Dunn	1898	1898
Balt. Med. Coll., 1898.		
Holt, W. P., Duke	1895	1901
Jefferson Med. Coll., Phila., 1895.		
Lee, Sanders, P. Jethrew, Dunn, R. F. D. 6	1904	
Md. Med. Coll., Balt., 1904.		
McKay, J. F., Buie's Creek	1885	1904
S. C. Med. Coll., 1884.		
McLean, J. W., Godwin	1902	1902
N. C. Med. Coll., 1902.		
Melvin, W. C., Linden	1900	1905
Univ. Coll. of Med., Va., 1900.		
Moore, F. T., Benson	1885	1904
P. and S. Balt., 1885.		
Roberts, H. C., Coats	1912	1913
Tulane Univ., 1912.		
Sexton, C. H., Dunn	1890	1904
Univ. of Md., 1890.		
Smith, F., Linden	1885	1905
S. C. Med. Coll., 1868.		
Warren, R. L., Dunn	1911	1912
Tulane University, 1911.		

HAYWOOD COUNTY SOCIETY

Name and Address.	*Licensed.*	*Joined State Society.*
President, J. F. Abel, Waynesville	1893	1899
Univ. of Balt., 1892.		
Secretary, J. R. McCracken, Waynesville	1902	
N. C. Med. Coll., Charlotte, 1902.		
Allen, R. L., Waynesville	1885	1899
Univ. of Md., 1885.		
Johnson, Wiley Carroll, Canton	1912	
Tulane Univ. of La., New Orleans, 1912.		
McMahan, J. W., Cresmont	1912	1913
Tennessee Med. Coll., 1900.		
Mease, J. H., Canton	1893	1894
Vanderbilt Univ., 1893.		
Reynolds, T. F., Canton	1904	1904
N. C. Med. Coll., 1904.		
Russell, J. M., Canton	1911	1911
Univ. of Nashville, 1911.		
Stringfield, S. L., Waynesville	1905	1906
Jefferson Med. Coll., Phila., 1905.		
Stringfield, S. M., Waynesville		
Way, J. Howell (Hon.), Waynesville	1885	1887
Vanderbilt Univ., 1886.		

HENDERSON-POLK COUNTY SOCIETY.

President, B. F. Cliff, Flat Rock	1914	1915
George Washington Univ. Med. School, 1908.		
Secretary, E. Pierce Mallett, Hendersonville	1913	1913
Long Island Med. Coll., 1889.		
Brown, J. S., Hendersonville	1894	1894
Northwestern Univ., 1893.		
Cranford, J. F., Hendersonville	1909	1910
N. C. Med. Coll., 1909.		
Dixon, G. E., Hendersonville	1903	1903
P. and S., St. Louis, 1903.		
Edgerton, J. L., Hendersonville		1890
Univ. of Md., 1877.		
Grady, Wm. Earle, Tryon	1895	
Univ. of Md., and the Coll. of P. & S., Balt., 1894.		
Greenwood, S. E., Fletcher, R. F. D.	1903	1904
Tenn. Med. Coll., 1902.		
Hooper, Jno. O., Saluda	1908	1909
Univ. of Nashville, 1908.		
Howe, W. B. W., Hendersonville	1907	1908
Med. Coll. of S. C., 1906.		
Kirk, W. R., Hendersonville	1901	1903
Central Univ. of Ky., 1890.		
Morse, L. B., Hendersonville	1901	1908
Chicago Homeopathic Coll., 1897.		

Name and Address.	*Licensed.*	*Joined State Society.*
Palmer, M. C., Tryon	1911	1913
Med. Coll. of S. C., 1910.		
Salley, E. McQ., Saluda	1905	1906
Univ. of Md., 1905.		
Sumner, T. W., Fletcher	1910	1910
Jefferson Med. Coll., Phila., 1910.		

HERTFORD COUNTY SOCIETY.

President, T. I. Burbage, Como	1885	
Memphis Hosp. Med. Coll., Memphis, 1883.		
Secretary, W. B. Pollard, Winton	1903	
Univ. of Pa., Phila., 1899.		
Harrell, G. N., Murfreesboro		1907
Univ. Coll. of Med., Richmond, 1907.		
Mitchell, J. H., Ahoskie	1885	
Coll. of P. and S., Balt., 1879.		
Walker, L. K., Ahoskie.		

HOKE COUNTY SOCIETY.

President, A. P. Dickson, Raeford		1906
Univ. of N. Y., 1878.		
Secretary, L. B. McBrayer, Sanatorium	1891	
Univ. of Md., and the Coll. of P. and S., Balt., 1911.		
Brown, Geo., W., Raeford	..	1900
Ky. School of Med., Louisville, 1898.		
Graham, G. A., Raeford		1905
Univ. of N. Y., 1876.		
Juat, Francis, Raeford	1910	1910
Univ. of Berne, 1886.		
McBrayer, Reuben, Sanatorium.		
McCain, P. P., Sanatorium	1914	
Univ. of Md., and the Coll. of P. and S., Balt., 1911.		
Rosser, R. G., Rock Fish	1909	1911
N. C. Med. Coll., Charlotte, 1909.		
Thompson, S. W., Sanatorium	1915	
Med. Coll. of Va., Richmond, 1913.		
Wilkins, R. B., Raeford	1913	1913
N. C. Med. Coll., 1913.		

IREDELL-ALEXANDER COUNTY SOCIETY.

President, James W. Davis, Statesville	1913	1915
Univ. of Pa., 1913..		
Secretary, John E. McLaughlin, Statesville	1886	1896
Univ. of Md., 1886.		
Adams, M. R. (Hon.), Statesville	1884	1884
Univ. of Md., 1878.		

Name and Address.	*Licensed.*	*Joined State Society.*
Anderson, T. E. (Hon.), Statesville	1878	1878
Jefferson Med. Coll., Phila., 1878.		
Bell, Andrew E., Mooresville	1897	
Univ. of Md., and the Coll. of P. and S., Balt., 1897.		
Carpenter, F. A., Statesville	1906	1906
N. C. Med. Coll. 1906.		
Crowson, Samuel T., Taylorsville	1907	
Univ. of Tenn., Memphis, 1904.		
Easley, Philip Samuel, Statesville	1907	
N. C. Med. Coll., Charlotte, 1907; Jeff. Med. Coll., Phila., 1908.		
Gibson, Lauren Osborne, Statesville	1913	
N. C. Med. Coll., Charlotte, 1913.		
Gilmore, Willis Dowd, Mooresville	1903	
Univ. of N. C., School of Med., Chapel Hill, 1903.		
Leeper, D. H., Hiddenite	1906	1913
N. C. Med. Coll., 1906..		
Little, Espy Eugene, Statesville, R. F. D.	1912	
N. C. Med. College, Charlotte, 1912.		
Long, H. F., Statesville	1892	1903
Univ. of Md., 1892.		
McLelland, Wm. Davies, Mooresville	1913	
Jeff. Med. Coll. of Phila., 1913.		
Sharpe, Frank Louis, Statesville	1904	
Univ. of N. C., Chapel Hill, 1904.		
Sherrill, C. L., Statesville	1914	
N. C. Med. Coll., 1914.		
Talley, J. S., Troutmans	1910	1917
Univ. of N. C., 1909.		
Taylor, G. W., Mooresville	1906	
N. C. Med. College, Charlotte, 1906.		
Thurston, Asa, Statesville		
Yount, Eugene McDuffie, Statesville	1902	
N. C. Med. College, Charlotte, 1906.		

JACKSON COUNTY SOCIETY.

President. C. Z. Candler, Sylva	1901	1912
P. and S., Atlanta, 1901.		
Secretary, D. D. Hooper, Sylva	1905	1905
Univ. Coll. of Med., Va., 1905.		
Bryson, E. J., Fontana	1914	1915
Bennett, Chicago, Ill., 1913.		
Nichols, Alvin A., Sylva	1904	
Univ. of Nashville, Med. Dept., 1898.		
Nichols, Asbury S., Sylva	1907	
Lincoln Mem. Univ., Med. Dept., Knoxville, 1905.		

JOHNSTON COUNTY SOCIETY.

Name and Address.	*Licensed.*	*Joined State Society.*
President, George D. Vick, Selma	1906	1906
Jefferson Med. Coll., Phila., 1906.		
Secretary, Oscar Eason, Princeton	1910	1910
Univ. of N. C., 1910.		
Coleman, G. S., Kenly	1907	1908
Med. Coll. of Va., 1907.		
Grady, J. C., Kenly	1887	1905
P. and S., Balt., 1887.		
Griffin, J. A. (Hon.), Clayton		1905
P. and S., Balt., 1881.		
Griffin, T. A., Clayton	1912	1912
Univ. of Md., 1912.		
Hinnant, Milford, Micro	1912	
Univ. of Md., S. of Med. and the Coll. of P. and S., Balt., 1912.		
Hocutt, Battle A., Clayton	1906	
Univ. of N. C., S. of Med., Chapel Hill, 1906.		
Hooks, Thel., Smithfield	1901	1903
Med. Coll. of Va., 1901.		
McLemore, G. A., Clayton	1906	1907
Univ. of N. C., 1900.		
Muns, Leonard A., Smithfield	1888	
Coll. of P. and S., Balt., 1885.		
Meyerburg, I. W., Pine Level	1907	1908
Jefferson Med. Coll., Phila., 1907.		
Noble, R. J. (Hon.), Selma	1878	1879
Ky. Med. School, 1875.		
Parker, G. E., Benson	1885	
Coll. of P. and S., Balt., 1886.		
Person, J. B., Selma	1897	1900
Med. Coll. of Va., 1897.		
Rose, A. H., Smithfield	1906	1906
Jefferson Med. Coll., Phila., 1906.		
Utley, H. H., Benson	1906	1906
Balt. Med. Coll., 1906.		
Wharton, L. D., Smithfield	1893	1894
Tulane Univ., 1893.		
Wilmerding, W. E., Selma	1915	
Univ. of the South, Sewanee, 1899.		
Woodard, A. G., Princeton	1907	1907
Univ. of N. C., 1907.		
Woodard, G. B., Kenly	1915	
Med. Coll., of Va., 1915.		
Young, J. J., Clayton	1896	1904
P. and S., Balt., 1897.		

LEE COUNTY SOCIETY.

Name and Address.	*Licensed.*	*Joined State Society.*
President, Leon Watson, Broadway	1900	1904
N. C. Med. Coll., 1900.		
Secretary, Lynn McIver, Sanford	1902	1902
Univ. of Ky., 1901.		
McIver, E. M., Jonesboro	1908	1908
Univ. of N. C., 1908.		
Monroe, J. P., Sanford	1901	1901
P. and S., Balt., 1901.		
Monroe, W. A., Sanford	1886	1888
Univ. of Md., 1886.		
Rosser, R. G., Broadway	1909	1911
N. C. Med. Coll., 1909.		
Scott, Chas. L., Sanford	1899	
Univ. of Md., 1897.		
Snipes, E. P., Jonesboro	1892	1892
Vanderbilt Univ., 1890.		

LENOIR COUNTY SOCIETY.

President, I. M. Hardy, Kinston	1902	1902
Med. Coll. of Va., 1901.		
Secretary, F. S. Whitaker, Kinston	1913	1913
Balt. Med. Coll., 1913.		
Denny, W. W. (Hon.), Pink Hill		
Hargrove, W. F., Kinston	1901	1901
Univ. of Md., 1901.		
Hawes, S. J., Dover	1911	
Univ. Coll. of Med., Va., 1911.		
Kornegay, George E., Kinston	1913	
Tulane Univ. of La., 1907.		
McNairy, C. B., Lenoir	1893	1907
P. and S., Balt., 1893.		
Monk, H. D., Trenton	1896	1904
Med. Coll. of Va., 1896.		
Moseley, Z. V., Kinston	1913	
Univ. Coll. of Med., Va., 1913.		
Parrott, A. D., Kinston	1906	1906
Univ. Coll. of Med., Va., 1906.		
Parrott, J. M., Kinston	1895	1895
Tulane Univ., 1895.		
Parrott, W. T., Kinston	1895	1895
Tulane Univ., 1895.		
Perry, Vance P., Kinston	1916	1916
Med. Coll. of Va., 1916.		
Tull, Henry (Hon.), Kinston	1876	1876
Univ. of Pa., 1876		
Whitaker, F. A., Kinston	1871	1884
Univ. of Pa., 1875.		
Whitaker, R. A. (Hon.), Kinston	1885	1885
P. & S., Balt., 1885.		

LINCOLN COUNTY SOCIETY.

Name and Address.	*Licensed.*	*Joined State Society.*
President, H. N. Abernathy, Denver	1894	1898
Louisville Med. Coll., 1894.		
Secretary, J. R. Gamble, High Shoals	1911	
Univ. of Nashville and Tenn., 1911.		
Crowell, L. A., Lincolnton	1892	1892
Balt., Med. Coll., 1892.		
Elliott, W. F., Lincolnton.		
Hoover, C. H., Crouse	1903	1904
Balt. Med. Coll., 1903.		
Kizer, W. C., Reepsville		1904
Southern Med. Coll., Ga., 1889.		
Saine, J. W., Lincolnton	1891	1904
Louis. Med. Coll., 1891.		
Sloan, H. L., Lincolnton	1913	
Univ. of Pa., 1911.		
Thompson, C. D., Lincolnton	1901	1904
Univ. of Tenn., 1901.		

McDOWELL COUNTY SOCIETY.

President, G. B. Justice, Marion	1907	1907
P. and S., Atlanta, 1906.		
Secretary, G. S. Kirby, Marion	1896	1904
Univ. Coll. of Med., Va., 1897.		
Ashworth, B. L., Marion	1893	1895
P. and S., Balt., 1893.		
Johnson, John B., Old Fort, R. F. D.	1914	
Univ. of Louisville, Med. Dept., 1905.		
Jonas, J. F., Marion	1903	1903
Balt. Med. Coll., 1903.		
McIntosh, D. M., Old Fort	1907	1908
Med. Coll. of Va., 1904.		
Taylor, H. C., Nebo.		

MACON-CLAY COUNTY SOCIETY.

President, S. H. Lyle, Franklin	1881	1881
Univ. of Nashville, 1883.		
Secretary, W. A. Rogers, Franklin	1898	1898
Univ. of Nashville, 1898.		
Lapham, Mary E., Highlands	1906	1906
Woman's Med. Coll. of Pa., 1900.		
Siler, F. L., Franklin	1898	1898
Univ. of Nashville, 1897.		

MADISON COUNTY SOCIETY.

President,		
Secretary, J. N. Moore, Marshall	1905	1908
Univ. of N. C., 1905.		
Baird, J. H., Mars Hill	1885	1885

Name and Address.	*Licensed.*	*Joined State Society.*
Baird, J. W., Mars Hill	1908	
Lincoln Memorial Univ. Knoxville, 1901.		
Burnett, Isaac Erastus, Mars Hill	1905	
Lincoln Memorial Univ., Knoxville, 1901.		
Packard, G. H., White Rock	1914	1914
Coll. P. and S., Balt., 1898.		
Peck, E. J., Hot Springs		1907
Vanderbilt Univ., 1879.		
Roberts, Frank, Marshall	1892	1902
Jefferson Med. Coll., Phila., 1892.		
Robinson, Willard F., Mars Hill	1903	
Vanderbilt Univ., Med. Dept., Nashville, 1896.		
Sprinkle, C. N., Mars Hill	....	....
Tilson, J. C., Marshall	1885	1904
Tenn. Med. Coll., 1892.		

MARTIN COUNTY SOCIETY.

President, W. Hassell House, Oak City	1915	1917
Jeff. Med. Coll., 1915.		
Secretary, W. E. Warren, Williamston	1893	1894
Nongrad Univ., N. Y.		
Buie, Roderick Mark, Williamston, R. F. D.	1914	
Jefferson Med. Coll. of Phila., 1914.		
Fleming, M. J., Hamilton	1906	1906
Jeff. Med. Coll., Phila., 1906.		
Godwin, G. C., Williamston	1915	1915
Med. Coll. of Va., Richmond, 1915.		
Hargrove, R. H. (Hon.), Robersonville	1879	1879
Univ. of Md., 1877.		
Knight, J. B. H., Williamston	1885	1891
P. and S., Balt., 1885.		
Long, B. L., Hamilton	1883	1882
Univ. of Md., 1881.		
Nelson, R. J., Robersonville	1890	1893
Louisville Med. Coll., 1890.		
Rhodes, J. S., Williamston	1906	1906
Med. Coll. of Va., 1906.		
Saunders, J. H., Williamston	1905	1905
Univ. Coll. of Med., Va., 1905.		
Smithwick, J. E., Jamesville	1897	1897
Med. Coll. of Va., 1897.		
Ward, J. E., Robersonville	1904	1904
Univ. of Md., 1904.		
Ward, V. A., Robersonville	1908	1908
Jefferson Med. Coll., Phila., 1908.		
Williams, J. W., Everitts	1906	1906
Univ. of Md., 1906.		
York, H. B., Williamston	1906	1906
P. and S., Balt., 1906.		

MECKLENBURG COUNTY SOCIETY.

Name and Address.	*Licensed.*	*Joined State Society.*
President, ...		
Secretary, Otho B. Ross, Charlotte	1909	1911
Univ. of Pa., 1909.		
Alexander, Annie L., Charlotte	1885	1885
Woman's Med. Coll., Pa., 1884.		
Alexander, J. R., Charlotte	1894	1898
Univ. Md., 1894.		
Allan, Wm., Charlotte	1906	1908
P. and S., Balt., 1906.		
Ashe, J. R., Charlotte	1915	1915
Columbia Univ., 1911.		
Austin, F. DaC., Charlotte	1907	1907
N. C. Med. Coll., 1907.		
Austin, J. A., Charlotte	1882	1887
Jefferson Med. Coll., Phila., 1882.		
Blalock,		
Boyette, E. C., Charlotte	1898	1898
Balt. Med. Coll., 1893.		
Craven, W. W., Huntersville	1904	1912
Univ. Md., 1903.		
Crowell, A. J., Charlotte	1892	1893
Univ. of Md., 1893.		
Crowell, S. M., Charlotte	1895	1895
Univ. of Md., 1895.		
Davidson, J. E. S., Charlotte	1898	1898
Univ. of Md., 1894.		
Faison, I. W. (Hon.), Charlotte	1878	1878
Bellevue Med. Coll., 1878.		
Faison, Yates, Charlotte	1910	1912
Harvard Univ., 1910.		
Gallant, R. M., Charlotte	1915	1916
N. C. Med. Coll., Charlotte, 1915.		
Gibbon, R. L., Charlotte	1891	1893
Jefferson Med. Coll., Phila., 1892.		
Graham, W. A., Charlotte	1889	1890
P. & S., N. Y., 1888.		
Hand, Edgar Hall, Pineville	1907	
N. C. Med. Coll., Charlotte, 1907.		
Herron, A. M., Charlotte	1884	
Med. Coll. of the State of S. C., 1882.		
Houser, M. C., Charlotte,		
Houser, O. J., Charlotte	1914	
N. C. Med. Coll., 1914.		
Hovis, L. W., Ahoskie	1904	1906
N. C. Med. Coll., 1904.		
Irwin, J. R. (Hon), Charlotte	1882	1882
Univ. of Md., 1879.		

Name and Address.	*Licensed.*	*Joined State Society.*
Johnson, J. G., Charlotte	1913	1915
Med. Dept. of Vanderbilt Univ., 1899.		
King, P. M., Charlotte	1902	1904
Bellevue Med. Coll., 1902.		
Lafferty, R. H., Charlotte	1906	1906
N. C. Med. Coll., 1906.		
Leinbach, R. F., Charlotte	1907	1909
Univ. of Pa., 1907.		
Lubchenko, M. E., Newells	1915	1916
N. C. Med. Coll., Charlotte, 1915.		
MacConnell, J. W., Davidson	1908	1908
Univ. of Md., 1907.		
McKay, H. W., Charlotte	1911	1912
Jefferson Med. Coll., Phila., 1910.		
McLaughlin, S. C., Charlotte	1896	1903
Univ. of Md., 1896.		
Matheson, J. P., Charlotte	1902	1902
N. C. Med. Coll., 1902; Univ. of Md., 1905.		
Meisenheimer, C. A. (Hon.), Charlotte	1882	1882
N. Y. Univ. Med. Coll., 1882.		
Moore, A. W., Charlotte	1912	1912
Univ. of Va., 1901; Univ. of N. Y., 1902.		
Moore, Oren, Charlotte	1911	1911
N. C. Med. Coll., 1911.		
Moore, R. A., Charlotte	1911	1917
N. C. Med. Coll., Charlotte, N. C., 1911.		
Munroe, J. P., Charlotte	1887	1887
Univ. of Va., 1886.		
Myers, John Q., Charlotte	1904	1904
N. C. Med. Coll., 1904.		
Nalle, B. C., Charlotte	1905	1905
Univ. of Va., 1903.		
Newell, L. B., Charlotte	1905	1905
Univ. of N. C., 1905.		
Nisbet, W. O., Charlotte	1899	1899
Med. Coll. of S. C., 1889.		
Peeler, C. N., Charlotte	1906	1906
N. C. Med. Coll., 1906.		
Petrie, R. W., Charlotte	1903	1903
Univ. of Md., 1903.		
Petteway, G. H., Charlotte, R. F. D.	1913	1914
N. C. Med. Coll., 1913.		
Pharr, W. W., Charlotte	1883	1883
P. and S., Balt., 1882.		
Pressley, G. W., Charlotte	1895	1895
Jefferson Med. Coll., Phila., 1892.		
Prevette, Isaac Call, Charlotte	1916	1917
Univ. of N. Y. and Bellevue Hosp. Med. Coll., 1915.		

Name and Address.	*Licensed.*	*Joined State Society.*
Query, R. Z., Charlotte, R. F. D. 3	1907	1907
Univ. Coll. of Med., Va., 1907.		
Ranson, J. L., Pineville, R. F. D. 15	1911	1911
N. C. Med. Coll., 1911.		
Sadelson, G. H., Charlotte	1885	
Univ. of Buffalo, 1876.		
Simmons, J. O., Charlotte	1906	1906
Grant Univ., 1894.		
Squires, J. W., Charlotte	1911	1911
N. C. Med. Coll., 1911.		
Strong, C. M., Charlotte	1898	1898
Univ. of Md., 1888.		
Strong, Wm. Mason, Charlotte	1904	
N. C. Med. Coll., Charlotte, 1904.		
Thompson, S. R., Charlotte	1914	1915
N. C. Med. Coll., 1914.		
Townsend,		
Tucker, J. H., Charlotte	1899	1899
Univ. of Va., 1899.		
Wakefield, H. A., Charlotte	1908	1911
N. C. Med. Coll., 1908.		
Walker, C. E., Charlotte	1891	1894
Univ. of Md., 1891.		
Whisnant, A. M., Charlotte	1893	1895
P. and S., Balt., 1893.		
Wishart, W. E., Charlotte	1911	1911
N. C. Med. Coll., 1911.		
Witherspoon, B. J., Charlotte	1900	1906
S. C. Med. Coll., 1894.		

MITCHELL COUNTY SOCIETY.

President, C. A. Peterson, Spruce Pine	1907	1908
N. C. Med. Coll., 1907.		
Secretary,		

MONTGOMERY COUNTY SOCIETY.

President, C. W. Armstrong, Troy	1914	1915
Univ. of Md., 1914.		
Secretary, H. B. Hoyle, Biscoe	1896	1903
N. C. Med. Coll., 1896.		
Andrews, V. L., Mount Gilead	1909	
Univ. Coll. of Med., Va., 1909.		
Daligny, Charles, Troy	1885	1902
Military Med. School, Paris, 1878.		
Dameron, E. L., Star	1911	
N. C. Med. Coll., 1911.		
Ingram, C. B., Mount Gilead	1886	1902
Jefferson Med. Coll., Phila., 1886.		

Name and Address.	*Licensed.*	*Joined State Society.*
Rankin, P. L., Mount Gilead	1910	1912
N. C. Med. Coll., 1910.		
Shamburger, J. B., Star	1890	1892
Univ. of Md., 1890.		
Thompson, A. F., Troy	1895	1902
Med. Coll. of Ind., 1895.		

MOORE COUNTY SOCIETY.

President, G. McLeod, Carthage	1885	1904
Univ. of Md., 1882.		
Secretary, A. McN. Blair, Southern Pines	1905	1905
Univ. of N. Y., 1897.		
Achorn, J. W., Pine Bluff	1899	
Med. School of Maine, 1887; Bellevue Med. Coll., 1889.		
McDonald, A. A., Jackson Springs	1905	1912
N. C. Med. Coll., 1905.		
McLeod, A. H., Aberdeen	1896	1904
Balt. Med. Coll., 1896.		
Matthews, J. H., Vass	1907	1908
Univ. of N. C., 1907.		
Matthews, M. L., Cameron	1903	1903
Univ. of N. C., 1903.		
Mudgett, W. C., Southern Pines	1908	1908
Univ. of Md., 1903.		
Shields, H. B., Carthage	1887	1904
Atlanta Med. Coll., 1882.		
Street, M. E., Glendon	1893	1902
P. and S., Balt., 1893.		

NASH COUNTY SOCIETY.

President, A. C. McCall, Rocky Mount	1910	
Univ. of Md., Balt., 1910.		
Secretary, E. R. Hines, Rocky Mount	1916	1916
Med. Coll. of the State of S. C., 1916.		
Battle, Ivan Proctor, Rocky Mount	1889	
Univ. of Md., 1889.		
Battle, J. P., Nashville	1888	
Univ. of Md. and the Coll., of P. and S., Balt., 1889.		
Boice, E. S., Rocky Mount	1914	
Univ. of Pa., Phila., 1909.		
Braswell, J. C., Nashville,		
Med. Coll. of Va., 1915.		
Clinton, R. S., Rocky Mount	1914	1916
Univ. of Md., Balt., 1914.		
Coppage, T. O., Nashville.		
Cutchin, J. Henry, Whitakers	1911	
Univ. Coll. of Med., Richmond, 1911.		

Name and Address.	*Licensed.*	*Joined State Society.*
Deans, Arthur Wood, Battleboro, R. F. D. 2	1915	
Med. Coll. of Va., Richmond, 1915.		
Dixon, D. R., Rocky Mount	1909	
Univ. Coll. of Med., Va., 1906.		
Kornegay, L. W., Rocky Mount	1906	1906
N. C. Med. Coll., 1906.		
Lane, J. L., Rocky Mount	1906	1906
N. C. Med. Coll., 1906.		
Marriott, Henry B., Battleboro	1883	
Missouri Med. Coll., St. Louis, 1883.		
Martin, E. G., Red Oak.		
Putney, R. H., Elm City	1914	
Med. Coll. of Va., 1914.		
Quillen, E. B., Rocky Mount	1906	
Univ. of Md., 1904.		
Ray, Hickman, Rocky Mount	1915	
Univ. of Md., Balt., 1915.		
Speight, J. A., Rocky Mount	1906	
Jeff. Med. Coll. of Phila., 1906.		
Speight, J. Powell, Rocky Mount, R. F. D.	1906	
Jeff. Med. Coll. of Phila., 1906.		
Speight, R. H., Sr. (Hon.), Whitakers, R. F. D.		
Speight, R. H., Jr., Rocky Mount	1901	
Univ. of Md., Balt., 1901.		
Staley, S. W., Rocky Mount	1901	
Med. Coll. of State of S. C., 1901.		
Strickland, J. T., Nashville	1890	
Univ. of Md., 1890.		
Whitehead, J. P., Rocky Mount	1899	
Univ. of Md., 1899.		
Willis, B. C., Rocky Mount	1915	
Med. Coll. of Va., 1909.		
Wimberly, G. L., Rocky Mount	1883	
Univ. of Md., Balt., 1883.		

NEW HANOVER COUNTY SOCIETY.

President, Ernest S. Bulluck, Wilmington	1911	1911
Univ. of Md., 1911.		
Secretary, G. E. Bowdoin, Wilmington	1914	
Med. Coll. of Va., 1904.		
Bellamy, W. J. H. (Hon.), Wilmington	1870	1870
Univ. of N. Y., 1868.		
Bolles, C. P., Jr., Wilmington	1908	1908
Univ. of Va., 1897.		
Bullock, D. W. (Hon.), Wilmington	1875	1875
Univ. of Md., 1873.		
Causey, P. P., Wilmington,		
Univ. of Md., 1897.		

Name and Address.	*Licensed.*	*Joined State Society.*
Codington, Herbert Augustus, Wilmington	1915	
Univ. of Md., and the Coll. of P. and S., Balt., 1911.		
Cranmer, J. B., Wilmington	1905	1906
Univ. of N. C., 1905.		
Croom, G. A., Wilmington	1909	
N. C. Med. Coll., 1909.		
Galloway, W. C. (Hon.), Wilmington	1880	1880
Washington Univ. School of Med., 1874.		
Graham, Ben., Wilmington	1895	
Univ. of Va., 1895.		
Hall, Wright (Hon.), Wilmington	1900	1900
Univ. of Md., 1900.		
Harris, A. H., Wilmington	1892	1904
Medico-Chirurgical, Phila., 1893.		
Honnett, Jos. Harry, Wilmington	1901	1904
P. and S., N. Y., 1900.		
Hooper, Jos. Ward, Wilmington	1912	
Univ. of Md. and the Coll. of P. & S., Balt., 1909.		
Koonce, S. E., Wilmington	1896	1900
P. and S., Balt., 1896.		
Love, W. J. (Hon), Wilmington	1861	1870
S. C. Med. Coll., 1861.		
McDonald, A. D. (Hon.), Wilmington	1887	1877
Wash. Univ. Med., 1877.		
McMillan, W. D. (Hon.), Wilmington		1901
Univ. Md., 1868.		
Mebane, W. C., Wilmington	1905	
N. C. Med. Coll., 1905.		
Moore, Hugh Tate, Wilmington	1913	1913
Tulane Univ., 1913.		
Moore, W. H., Wilmington	1910	1911
Jefferson Med. Coll., Phila., 1910.		
Murphy, J. G., Wilmington	1903	1905
Univ. Louisville, 1903.		
Nesbitt, C. T., Wilmington	1907	1908
Balt. Med. Coll., 1903.		
Pridgen, C. L., Wilmington	1901	
Jefferson Med. Coll., Phila., 1901.		
Schonwald, J. L. (Hon.), Wilmington	1880	1904
Long Island Med. Coll., 1879.		
Sidbury, J. B., Wilmington	1915	
Columbia Univ., N. Y., 1912.		
Slocum, R. B., Wilmington	1907	1908
Johns Hopkins, 1905.		
Thomas, G. G. (Hon.), Wilmington	1871	1871
Univ. of Md., 1871.		
Wessell, J. C., Wilmington	1900	1900
Univ. of Md., 1900.		

NORTHAMPTON COUNTY SOCIETY.

Name and Address.	*Licensed.*	*Joined State Society.*
President, P. C. Brittle, Conway	1907	1907
Univ. Col. of Med., Va., 1907.		
Secretary, L. E. McDaniels, Lasker	1915	
Univ. of Md., 1911.		
Bolton, Mahlon, Rich Square	1885	1885
Jefferson Med. Coll., Phila., 1885.		
Cooke, Q. H., Woodland	1905	1907
Univ. of N. C., 1905.		
Joyner, Thaddeus O., Severn	1899	
Univ. Coll. of Med., Richmond, 1899.		
Lassiter, E. W., Rich Square	1908	1908
Univ. Coll. of Med., Va., 1908.		
Lewis, H. W., Jackson	1885	1887
Univ. of N. Y., 1877.		
Lister, J. L., Jackson	1896	1909
Med. Coll. of Va., 1896.		
Morehead, Robert P., Weldon	1895	
Coll. of P. and S., Balt., 1895.		
Parker, Paul G., Potecasi	1916	1917
Med. Coll. of Va., Richmond, 1916.		
Parker, C. G., Woodland	1907	1909
Univ. Coll. of Med., Va., 1907.		
Stancell, R. H., Margarettsville	1885	
Med. Coll. of Va., Richmond, 1865.		
Stephenson, M. R., Seaboard	1885	
Univ. of Md., and the Coll. of P. & S., Balt., 1881.		
Vaughn, J. C., Rich Square	1915	1917
Med. Coll. of Va., 1915.		

ONSLOW COUNTY SOCIETY.

President, R. L. Daniels, Swansboro	1912	
Med. Coll. of Va., 1912.		
Secretary, A. M. McCuiston, Richlands	1911	1911
N. C. Med. Coll., 1911.		
Bryan, L. D., Sneed's Ferry	1910	1910
Tulane, 1910.		
Cox, E. L., Jacksonville	1892	1899
Univ. of Md., 1889.		
Duffy, R. N., Newbern	1907	
Johns Hopkins Univ., Med. Dept., 1906.		
Hammond, A. F., Pollocksville	1903	
Univ. Coll. of Med., 1903.		
Nicholson, J. L. (Hon.), Richlands	1875	1880
Univ. Coll. of Med., N. Y., 1875.		
Noell, R. H., Swansboro	1916	1917
Univ. of Md., 1916.		
Shaw, Colin, Maysville	1911	
N. C. Med. Coll., Charlotte, 1911.		

Name and Address.	*Licensed.*	*Joined State Society.*
Sutton, C. W., Richlands	19..	
Tulane Med. Coll., 1905.		
Thompson, Cyrus, Jacksonville	1885	1905
Univ. of Pa., 1878.		

ORANGE COUNTY SOCIETY.

(See Durham-Orange.)

PAMLICO COUNTY SOCIETY.

President, S. E. McCotter, Bayboro	1908	1908
P. and S., Atlanta, 1908.		
Secretary, R. E. Watts, Oriental	1913	
Med. Coll. of Va., 1911.		
Attmore, G. S. (Hon.), Stonewall	1870	1872
Washington Univ. School of Med., 1870.		
Dees, Daniel A., Bayboro	1903	
Balt. Med. Coll., 1903.		
Purdy, J. J., Oriental	1914	
Med. Coll. of Va., 1900.		

PASQUOTANK-CAMDEN-DARE COUNTY SOCIETY.

President, W. W. Sawyer, Elizabeth City	1903	1905
Univ. of Md., 1903.		
Secretary, H. T. Aydlett, Elizabeth City	1895	1896
Univ. of Va., 1894.		
Davis, Richard Boyd, Weeksville,		
Med. Coll. of Va., Richmond, 1915.		
Fearing, Isaiah, Elizabeth City	1896	1904
P. and S., Balt., 1896.		
Fearing, Zenas, Elizabeth City	1901	1904
Univ. Coll. of Med., 1901.		
Ferebee, Celus Gregory, South Mills	1904	
Med. Coll. of Va., Richmond, 1902.		
Griggs, J. B., Elizabeth City	1892	1904
Univ. of Md., 1892.		
Hoggard, W. A., Woodville	1907	1910
Univ. Coll. of Med., Va., 1907.		
Kendrick, R. L., Elizabeth City	1913	1915
Univ. of Va., 1913.		
Lister, Elisha W., Weeksville	1896	
Med. Coll. of Va., 1896.		
McMullan, Oscar, Elizabeth City	1885	1889
Univ. of Va., 1880.		
Newby, G. E., Hertford	1901	
Jefferson Med. Coll., Phila., 1900.		
Peters, W. A., Elizabeth City	1915	
Med. Coll. of Va., 1915.		

Name and Address.	*Licensed.*	*Joined State Society.*
Saliba, John, Elizabeth City	1914	1915
Univ. of Edinburgh, Scotland.		
Sawyer, C. W., Elizabeth City	1885	1904
Univ. of Md., 1886.		
Stevens, W. L., Shiloh	1912	....
Univ. Coll. of Med., Va., 1912.		
Walker, H. D., Elizabeth City	1902	1902
Univ. of Md., 1902.		
Williams, C. B., Elizabeth City	1903	1906
Univ. Coll. of Med., Va., 1903.		
Wright, Silas Gregory, Elizabeth City, R. F. D.	1913	....
Univ. of Md. and the Coll. of P. and S., Balt., 1904.		

PERSON COUNTY SOCIETY.

President, J. H. Merritt, Woodsdale	1907	1908
Univ. of N. C., 1906.		
Secretary, A. F. Nichols, Roxboro	1908	1908
Univ. of N. C., 1908.		
Baynes, R. H., Hurdle Mills	1914	1915
Univ. of Md., 1914.		
Baynes, R. S., Hurdle Mills	1881	1904
P. and S., Balt., 1881.		
Bradsher, W. A., Roxboro	1904	1905
Univ. of Md., 1904.		
Gentry, G. W., Timberlake	1910	1911
Univ. of N. C., 1910.		
Long, W. T., Roxboro	1905	1907
Balt. Med. Coll., 1905.		
Love, B. E., Roxboro	1904	1904
Univ. of Md., 1904.		
Montague, S. S., Roxboro, R. F. D. 2	1910	....
Jefferson Med. Coll., Phila., 1910.		
Nichols, C. G., Roxboro	1885	1891
Bellevue Med. Coll., 1885.		
Swann, J. F., Semora	1898	1904
P. and S., Balt., 1898.		
Warren, R. F., Prospect Hill	1911	1913
Atlanta School of Med., 1911.		

PITT COUNTY SOCIETY.

President, W. H. Dixon, Ayden	1901	1901
Med. Coll. of Va., 1901.		
Secretary, M. T. Edgerton, Jr., Greenville	1915	....
Johns Hopkins Univ., Balt., 1912.		
Basnight, Thomas G., Stokes	1905	....
Univ. of Md. and the Coll. of P. and S., Balt., 1904.		
Beasley, Edward Bruce, Fountain	1911	....
Univ. of Pa., School of Med., Phila., 1911.		

Name and Address.	*Licensed.*	*Joined State Society.*
Dawson, W. W., Grifton	1897	1900
Univ. of Md., 1897.		
Dixon, G. G., Ayden	1915	1917
Med. Coll. of Va., Richmond, 1915.		
Frizzelle, M. T., Ayden	1907	1907
Univ. of Md., 1888.		
Garrenton, Cecil, Bethel	1908	....
Med. Coll. of Va., Richmond, 1908.		
Jones, Claude M., Grimesland	1892	....
Univ. of Md. and the Coll. of P. and S., Balt., 1892.		
Laughinghouse, Charles O'H., Greenville	1893	1894
Univ. of Pa., 1893.		
Moseley, H. P., Farmville	1912	....
Univ. Coll. of Med., Richmond, 1912.		
Nobles, J. E. (Hon.), Greenville	1899	1902
Jefferson Med. Coll., Phila., 1899.		
Skinner, L. C., Greenville	1901	1902
Univ. of Md., 1901.		
Whitfield, W. C., Grifton	1884	1884
Univ. of Md., 1884.		

RANDOLPH COUNTY SOCIETY.

President, W. J. Moore, Ashboro	1893	1901
P. and S., Balt., 1893.		
Secretary, J. F. Miller, Ashboro	1915	....
Med. Chirurgical Coll. of Phila., 1906.		
Asbury, F. E. (Hon.), Ashboro	1885	1896
S. C. Med. Coll., 1876.		
Craven, F. C., Ramseur	1913	....
Univ. of Md., 1913.		
Fox, D. L., Randleman	1899	1904
Vanderbilt Univ., 1894.		
Fox, T. I., Franklinville	1899	1904
Vanderbilt Univ., 1894.		
Hayworth, Claudius Abijah, Coleridge	1913	....
Univ. of Md. and the Coll. of P. and S., Balt., 1913.		
Helms, T. L., Seagrove	....	....
Hubbard, C. C., Farmer	1890	1904
Jefferson Med. Coll., Phila., 1888.		
Hunter, J. V., Ashboro	1898	1904
Univ. of Louisville, 1898.		
Sumner, W. I., Randleman	1894	1894
Univ. of Tenn., 1893.		
Tate, C. S., Ramseur	1896	....
Balt. Med. Coll., 1893.		
Tidmarsh, Henry Walter, Randleman	....	....
N. C. Med. Coll., Charlotte, 1914.		

RICHMOND COUNTY SOCIETY.

Name and Address.	*Licensed.*	*Joined State Society.*
President, F. J. Garrett, Rockingham	1887	1903
Univ. of Md., 1889.		
Secretary, A. C. Everett, Rockingham	1897	1903
Univ. of Md., 1897.		
Coppedge, N. P., Ellerbe	1903	1903
Univ. of N. C., 1903.		
Fowlkes, J. I., Hamlet	1903	....
P. and S., Atlanta, 1903.		
Garrett, F. B., Rockingham	1912	....
N. C. Med. Coll., 1912.		
Howell, W. L., Ellerbe, R. F. D	1910	1910
N. C. Med. Coll., 1910.		
James, W. D., Hamlet	1908	....
Jeff. Med. Coll. of Phila., 1908.		
Kinsman, H. F., Hamlet	1897	1904
Univ. of Vermont, 1894.		
Ledbetter, J. M., Rockingham	1894	1903
Vanderbilt Univ., 1894.		
McIntosh, W. R., Roberdel	....	....
McPhail, L. D., Rockingham	1900	1902
Univ. of Md., 1900.		
Maness, J. M., Roberdel	1909	1909
Univ. N. C., 1909.		
Terry, W. C., Hamlet	1912	....
N. C. Med. Coll., 1911; Univ. of Md., 1912.		
Webb, W. P., Rockingham	1897	1904
Med. Coll. of S. C., 1897.		

ROBESON COUNTY SOCIETY.

President, R. G. Rozier, Lumberton	1898	1898
Univ. of Md., 1898.		
Secretary, R. S. Beam, Lumberton	1912	1913
Jefferson Med. Coll., Phila., 1912.		
Brown, J. P., Fairmont	1887	1887
Univ. of Md., 1883.		
Grantham, W. L., Lumberton	1906	1906
N. C. Med. Coll., 1906.		
Hodgin, H. H., Red Springs	1906	1906
Univ. of Md., 1905.		
Johnson, T. C., Lumberton	1905	1905
Univ. Coll. of Med., Va., 1905.		
McMillan, B. F. (Hon.), Red Springs	1884	1884
Univ. of Md., 1882.		
McMillan, R. D., Red Springs	1911	1912
Univ. of Md., 1910.		
McPhaul, Wilbur A., Lumberton	1905	....
Univ. of Nashville, Med. Dept., 1904.		

Name and Address.	*Licensed.*	*Joined State Society.*
Martin, J. A., Lumberton	1915	1916
Med. Coll. of Va., Richmond, 1915.		
Nash, Fred., St. Paul's	1914	....
N. C. Med. Coll., 1914.		
Page, B. W., Lumberton	1909	1910
Tulane Univ., 1909.		
Pope, H. T., Lumberton	1893	1894
N. C. Med. Coll., 1894.		
Reedy, Howard, Rowland	1887	1887
Med. Coll. of S. C., 1884.		
Ricks, L. E., Fairmont	1896	1898
Med. Coll. of Va., 1896.		
Thompson, N. A., Lumberton	1895	1904
Maryland Med. Coll., 1905.		

ROCKINGHAM COUNTY SOCIETY.

President	....	....
Secretary, W. P. Wilson, Madison	1908	1909
N. C. Med. Coll., 1908.		
Johnson, W. A., Reidsville	1909	1909
N. C. Med. Coll., 1907.		
McGehee, J. W., Reidsville	....	....
Matheson, R. C., Madison	1891	1905
P. and S., Balt., 1891.		
Taylor, James Thomas, Madison	1908	....
Univ. of Md. and the Coll. of P. and S., Balt., 1908.		

ROWAN COUNTY SOCIETY.

President	....	....
Secretary, Harold H. Newman, Salisbury	1914	....
Johns Hopkins Univ., Balt., 1913.		
Boyden, W. C., China Grove	1913	1914
N. C. Med. Coll., 1913.		
Brawley, M. H., Salisbury	1912	1914
N. C. Med. Coll., 1910.		
Brawley, R. V., Salisbury	1903	1904
Univ. Coll. of Med., Va., 1903.		
Brown, G. A., Mount Ulla	1897	1898
Univ. of Va., 1897.		
Burns, Arthur B., Cleveland	1908	....
Atlanta School of Med., 1908.		
Busby, J. G., Spencer	1904	1904
Univ. of Md., 1904.		
Choate, G. W., Rockwell	1909	1909
N. C. Med. Coll., 1909.		
Currie, E. W., Salisbury	1907	1907
N. C. Med. Coll., 1907.		

Name and Address.	*Licensed.*	*Joined State Society.*
Edwards, B. O., Landis	1905	1905
N. C. Med. Coll., 1905.		
Heilig, H. G., Salisbury	1899	1904
Univ. of Md., 1899.		
Monk, G. M., Spencer	1908	1908
Univ. of N. C., 1908.		
Ramseur, G. A., China Grove	1886	1898
Jefferson Med. Coll., Phila., 1880.		
Shafer, I. E., Gold Hill	1914	1914
N. C. Med. Coll., 1914.		
Sigman, F. G., Spencer	1909	1909
Univ. Coll. of Med., Va., 1909.		
Spencer, F. B., Salisbury	1909	1910
Univ. of N. C., 1909.		
Stokes, J. E., Salisbury	1900	1901
Univ. of Md., 1892.		
Summerell, E. N. (Hon.), China Grove, R. F. D	1883	1883
Univ. of Pa., 1883.		
Trantham, H. L. (Hon.), Salisbury	1878	1879
Univ. of N. Y., 1875.		
VanPoole, C. M. (Hon.), Salisbury	1880	1880
P. and S., Balt., 1880.		
West, R. M., Salisbury	1900	1904
Med. Coll. of Va., 1900.		
Whitehead, John (Hon.), Salisbury	1880	1880
Univ. of Pa., 1880.		
Woodson, Charles W., Salisbury	1905	1907
P. and S., New York, 1904.		

RUTHERFORD COUNTY SOCIETY.

President	....	....
Secretary	....	....
Allhand, J. M., Cliffside	1910	1910
Chicago Coll. Med. and Surg., 1910.		
Andrews, R. M., Union Mills, R. F. D	1904	1904
Memphis Hosp. Med. Coll., 1904.		
Biggs, M. H., Rutherfordton	1907	1907
Univ. of Pa., 1897.		
Bostic, W. C., Forest City	1905	1905
N. C. Med. Coll., 1905.		
Gold, C. F., Ellenboro	1910	1910
Univ. of N. C., 1910.		
Harrell, L. B., Caroleen	1902	1904
Grant Univ., 1897.		
Norris, Henry, Rutherfordton	1907	1906
Univ. of Pa., 1896.		
Reid, G. P., Forest City	1894	1899
Univ. Coll. of Med., Va., 1895.		

Name and Address.	*Licensed.*	*Joined State Society.*
Scruggs, W. M.	....	....
Shull, J. R., Cliffside	1911	1912
Univ. of Pa., 1911.		
Thompson, J. B., Bostic, R. F. D. 1	1898	1904
P. and S., Balt., 1898.		
Thompson, W. A., Rutherfordton	1895	1904
P. and S., Balt., 1885.		
Twitty, J. C., Rutherfordton	1892	1906
Balt. Med. Coll., 1892.		
Wiseman, C. B., Henrietta	1902	1902
P. and S., Balt., 1902.		

SAMPSON COUNTY SOCIETY.

President, J. D. Kerr, Jr., Clinton	1908	1909
Univ. of Md., 1908.		
Secretary, Paul Crumpler, Clinton	1907	1907
Univ. of Tenn., 1907.		
Beard, Grover Cleveland, Kerr, R. F. D	1912	....
Univ. of Md. and the Coll. of P. and S., Balt., 1912.		
Butler, B. F., Clinton	1911	....
Univ. Coll. of Med., 1911.		
Cooper, G. M., Raleigh	1905	1905
Univ. Coll. of Med., Va., 1905.		
Hardin, E. R., Clinton	1915	....
Univ. of Ga., Augusta, 1911.		
Hollingsworth, E. T., Ivanhoe	1912	1915
N. C. Med. Coll., 1912.		
Matthews, J. O., Clinton	1897	1898
Univ. Coll. of Med., Va., 1897.		
Sessons, E. T., Turkey	....	....
Sikes, G. L., Salemburg	1900	1900
Univ. Coll. of Med., Va., 1900.		
Sloan, Henry, Ingold	1885	1885
S. C. Med. Coll., 1881.		
Stevens, John A. (Hon.), Clinton	1883	1883
Jefferson Med. Coll., Phila., 1883.		
Turlington, H. C., Cooper, R. F. D	1913	1914
Univ. Coll. of Med., Va., 1913.		
Underwood, O. E., Roseboro	1909	1910
Univ. Coll. of Med., Va., 1909.		
Wilson, R. B., Newton Grove	1889	1904
Ky. School of Med., 1889.		

SCOTLAND COUNTY SOCIETY.

President, W. G. Shaw, Wagram	1895	1904
P. and S., Balt., 1892.		
Secretary, Peter McLean, Laurinburg	1907	1907
Univ. of Md., 1906.		

Name and Address.	*Licensed.*	*Joined State Society.*
Cannady, N. B., Laurinburg	1912	1916
Univ. of N. C., 1912; Univ. of N. C., 1916.		
Erwin, E. W., Laurinburg	1912	1913
Med. Coll. of S. C., 1912.		
Gibson, J. S., Gibson	1905	1905
Univ. of Md., 1905.		
Hunter, N. C., Laurinburg	1899	....
Medico-C. of Phila., 1899; Univ. Coll. of Md.; N. Y. P. G. Med. School and Hosp., 1909.		
James, Frantz, Laurinburg	1908	1908
Jefferson Med. Coll., Phila., 1908.		
John, Peter, Laurinburg	1897	1904
Univ. of Md., 1897.		
Livingstone, Everett, Gibson	1912	1912
Univ. of Md., 1912.		
McLean, Allen, Wagram	1908	1908
Univ. of Md., 1908.		
Pate, W. T., Gibson	1895	1895
P. and S., Balt., 1895.		
Prince, D. M. (Hon.), Laurinburg	1871	1878
S. C. Med. Coll., 1871.		
Willcox, J. W., Laurel Hill	1906	1906
Univ. of N. C., 1906.		

STANLY COUNTY SOCIETY.

President, J. C. Hall, Albemarle	1899	1899
Univ. Coll. of Med., Va., 1890.		
Secretary, Levin Freeland Magruder, Albemarle	1913	....
Tulane Univ. of La., 1905.		
Allen, J. A., New London	1901	1906
Univ. Coll. of Med., Va., 1901.		
Anderson, J. N., Albemarle	1895	1895
Univ. of Md., 1895.		
Campbell, James I., Norwood	1898	1904
Under-graduate N. C. Med. Coll.		
Cox, B. F., Palmerville	1886	....
Coll. of P. and S., Balt., 1886.		
Dunlap, L. V., Albemarle	1909	....
Univ. of N. C., 1909.		
Hartsell, F. E., Big Lick	1895	1905
Balt. Med. Coll., 1895.		
Hathcock, T. A., Norwood	1893	1904
Univ. of Md., 1893.		
Hill, Wm. Isaac, Albemarle	1897	....
Univ. of Md. and the Coll. of P. and S., Balt., 1897.		
Laton, J. F., Albemarle	1904	1908
N. C. Med. Coll., 1904.		

Name and Address.	*Licensed.*	*Joined State Society.*
Lyday, C. E., Albemarle	1910	....
Atlanta School of Med., 1910.		
Pierce, H. L., Locust	1914	1915
N. C. Med. Coll., 1914.		
Whitley, D. P., Albemarle	1890	1890
Univ. of Md., 1889.		

STOKES COUNTY SOCIETY.

President, W. L. McCanless, Danbury	1893	1904
Univ. of N. Y., 1893.		
Secretary, W. V. McCanless, Danbury	1893	1904
P. and S., Balt., 1888.		
Jones, A. G., Walnut Cove	1894	1904
Univ. of N. Y., 1868.		
Leak, J. J., Dan River	1901	1904
Univ. Coll. Med., Va.		
Moir, S. A., Francisco	....	1904
P. and S., Balt., 1888.		
Moore, W. B., Smith	1893	1904
P. and S., Balt., 1893.		
Moore, W. B., Smith	1893	1904
P. and S., Balt., 1893.		
Phillips, M. D., Dalton	1881	1904
Univ. of N. Y., 1881.		
Slate, W. C., Danbury	1903	....
Univ. of Tenn., 1903.		
Tuttle, R. G., Walnut Cove	1909	1912
N. C. Med. Coll., 1909.		

SURRY COUNTY SOCIETY.

President, R. E. L. Flippin, Pilot Mountain	1897	1897
Balt. Med. Coll., 1892.		
Secretary. M. S. Martin, Mount Airy	1909	....
Univ. Coll. of Med., Va., 1905.		
Ashby, E. C., Mount Airy	1914	....
Univ. of Pa., Phila., 1914.		
Ashby, T. B., Mount Airy	1885	1896
P. and S., Balt., 1885.		
Baird, C. A., Mount Airy	1909	1909
N. C. Med. Coll., 1904.		
Divers, G. T., Mount Airy	1909	1916
Univ. Coll. of Med., Richmond, 1909.		
Flippin, J. M., Mount Airy	1884	1893
P. and S., Balt., 1884.		
Flippin, S. T., Siloam	1898	1898
N. C. Med. Coll., 1898.		
Gambill Ira S., Dobson	1912	1912
N. C. Med. Coll., Charlotte, 1912.		

Name and Address.	*Licensed.*	*Joined State Society.*
Hollingsworth, E. M., Mount Airy	1886	1904
P. and S., Balt., 1886.		
Hollingsworth, R. E., Mount Airy	1898	1898
Univ. Coll. of Med., Va., 1898.		
Jones, Alexander Franklin, Ararat, R. F. D. 1	1915	....
N. C. Med. Coll., Charlotte, 1915.		
Lancaster, Rowland McNair, Dobson	....	....
N. C. Med. Coll., Charlotte, 1914.		
Moorefield, R. H., Westfield, R. F. D	1906	1906
N. C. Med. Coll., Charlotte, 1906.		
Reece, J. M., Elkin	....	1904
P. and S., Balt., 1886.		
Ring, J. W., Elkin	1885	1904
P. and S., Balt., 1880.		
Rowe, H. B., Mount Airy	1910	1912
Univ. of Md., 1910.		
Royall, M. A., Elkin	1885	1891
P. and S., Balt., 1885.		
Salmons, Henry C., Jonesville	1904	....
N. C. Med. Coll., Charlotte, 1904.		
Smith, J. B., Pilot Mountain	1885	1896
P. and S., Balt., 1885.		
Taylor, W. S., Mount Airy	1874	1894
Jefferson Med. Coll., Phila., 1874.		
Wellborn, W. R., Elkin	1908	1908
N. C. Med. Coll., 1905.		
Woltz, J. L., Mount Airy	1902	1902
Southern Med. Coll., Ga., 1897.		

SWAIN COUNTY SOCIETY.

President, A. M. Bennett, Bryson City	1885	....
Louis. Med. Coll., 1885.		
Secretary, J. L. Reeves, Whittier	....	....
Bennett, P. R., Bryon City	1916	1917
Univ. of Md., 1916.		
Bryson, Daniel R., Bryson City	1900	....
Univ. of Md. and the Coll. of P. and S., Balt., 1900.		
Cooper, Joel A., Almond	....	....
DeHart, James, Bryson City	1909	....
Univ. of Nashville, 1900.		

TRANSYLVANIA COUNTY SOCIETY.

Secretary, Thos. J. Summey, Brevard	1915	....
Jeff. Med. Coll. of Phila., 1915.		
English, E. S., Brevard	1902	1902
Univ. of the South, 1901.		

Name and Address.	*Licensed.*	*Joined State Society.*
Greene, A. D., Rosman	....	....
Hunt, C. W., Brevard	1880	1903
P. and S., Balt., 1880.		
Lyday, A. E., Penrose	1909	1900
Tenn. Med. Coll., 1891.		

TYRRELL COUNTY SOCIETY.

(See Washington-Tyrrell.)

UNION COUNTY SOCIETY.

President, J. E. Ashcraft, Monroe	1887	1888
Univ. of N. Y., 1887.		
Secretary, R. H. Garren, Monroe	....	....
Blair, M. P., Marshville	1895	1895
Med. Coll. of Va., 1895.		
Eubanks, J. B., Monroe	1887	1904
Vanderbilt Univ., 1887.		
Guin, L. E., Waxhaw	1907	1908
N. C. Med. Coll., 1907.		
Jerome, J. R., Wingate	1890	1904
Univ. of Md., 1890.		
Lovill, Robert J., Wingate	1912	1912
Univ. of Md., 1910.		
McCain, W. R., Waxhaw	1898	1906
Univ. Md., 1897.		
Nance, G. B., Monroe	1885	1885
Jefferson Med. Coll., Phila., 1885.		
Payne, R. L., Monroe	1911	1912
Tulane Univ., 1911.		
Perkins, D. R., Marshville	1906	1906
Balt. Med. Coll., 1903.		
Stevens, S. A., Monroe	1898	1898
Univ. of Md., 1900.		
Stewart, H. D., Monroe	1898	1898
Univ. of Md., 1898.		

VANCE COUNTY SOCIETY.

President	....	....
Secretary, N. H. Crews, Henderson	....	....
Absher, D. C., Henderson	1909	....
Univ. of Md., Balt., 1909.		
Allen, B. G., Henderson	1904	1904
Bellevue Med. Coll., 1904.		
Furman, W. H., Henderson	1910	....
Jefferson Med. Coll., Phila., 1910.		
Gill, R. J., Henderson	1880	1890
Univ. Pa., 1880.		

Name and Address.	*Licensed.*	*Joined State Society.*
Harris, F. R., Henderson	1882	1890
Univ. of Va., 1881.		
Henderson, T. B., Henderson	1914	1915
Med. Coll. of Va., 1906.		
McIntosh, L. C., Henderson	1914	....
P. and S., Atlanta, 1913.		
Perkins, F. E., Henderson	1905	1911
Univ. of N. Y., 1905.		
Upchurch, R. T., Henderson	1908	1909
Jefferson Med. Coll., Phila., 1908.		

WAKE COUNTY SOCIETY.

President, C. B. Wilkerson, Apex	1906	1907
Univ. of N. C., 1906.		
Secretary, R. P. Noble, Raleigh	....	....
Abernethy, C. O., Raleigh	1906	1906
Univ. of N. C., 1906.		
Adams, R. K., Raleigh	1912	....
Jeff. Med. Coll., Phila., 1912.		
Aiken, Alford, Wake Forest	1911	1916
Univ. Med. Coll., 1911.		
Anderson, Albert, Raleigh	1888	1888
Univ. of Va., 1888.		
Barbee, G. S., Zebulon	1910	....
Univ. of N. C., 1910.		
Battle, K. P., Jr. (Hon.), Raleigh	1882	1882
Univ. of Va., 1881; Bellevue Hosp. Med. Coll., 1882.		
Bell, C. W., Raleigh	1915	1916
Coll. of P. and S., Balt., 1914.		
Bell, G. M., Wakefield	....	1903
P. and S., Balt., 1885.		
Blalock, N. M., McCullers	1890	1890
P. and S., Balt., 1890.		
Buffalo, J. S., Garner	1900	1904
Balt. Med. Coll., 1900.		
Burt, B. W., New Hill	1886	1904
P. and S., Balt., 1886.		
Campbell, A. C., Raleigh	1910	1912
Univ. of N. C., 1910.		
Carroll, D. D., Raleigh	1900	1900
Woman's Med. Coll., N. Y., 1895.		
Carstarphen, W. T., Wake Forest	1911	....
Jefferson Med. Coll., Phila., 1904.		
Caveness, Z. M., Raleigh	1903	1903
Univ. of N. C., 1903.		
Cheek, C. E., Fuquay Springs	1912	....
Univ. Coll. of Med., Va., 1912.		
Cozart, W. S., Holly Springs	1914	1916
Med. Coll. of Va., Richmond, Va., 1914.		

Name and Address.	*Licensed.*	*Joined State Society.*
Ellington, A. J., Raleigh	....	....
Ferebee, E. B., Raleigh	1885	1903
P. and S., Balt., 1885.		
Ferrell, John A., 61 Broadway, New York City	1907	1908
Univ. of N. C., 1907.		
Finch, O. E., Apex	1915	....
Jeff. Med. Coll., Phila., 1915.		
Fowler, M. L., Zebulon	....	1904
P. and S., Balt., 1881.		
Gibson, M. R., Raleigh	1905	1908
Univ. of N. C., 1905.		
Goodwin, A. W., Raleigh	1889	1889
Bellevue Med. Coll., 1887.		
Haywood, Hubert, Raleigh	1889	1889
Bellevue Med. Coll., 1879.		
Haywood, Hubert, Jr., Raleigh	1909	....
Univ. of Pa., 1909.		
Hester, J. R., Knightdale	1910	1911
Univ. of N. C., 1910.		
Horton, M. C., Raleigh	1911	....
Univ. Coll. of Med., Va., 1903.		
Horton, W. C., Raleigh	1896	1896
P. and S., Balt., 1897.		
Jenkins, C. L., Raleigh	1890	1892
N. Y. Univ. Med. Coll., 1890.		
Johnson, R. W., Apex	1901	1901
Univ. of Tenn., 1900.		
Jordan, T. M., Raleigh	1881	1881
P. and S., Balt., 1881.		
Judd, E. C., Raleigh	1911	....
Univ. of Pa., 1911.		
Judd, J. M., Cardenas	1899	1899
Balt. Med. Coll., 1897.		
Knox, A. W., Raleigh	1878	1880
Bellevue Med. Coll., 1874.		
Lewis, R. H. (Hon.), Raleigh	1877	1877
Univ. of Md., 1871.		
Lowery, J. R., Raleigh	1904	....
Univ. of Md., 1904.		
McCullers, J. J. L., McCullers	1886	1886
P. and S., Balt., 1886.		
McDowell, F. C., Zebulon	....	....
McGeachy, R. S., Raleigh	1894	1895
Bellevue Med. Coll., 1894.		
McGee, J. W., Raleigh	1888	1888
Bellevue Med. Coll., 1888.		
McKee, J. S., Raleigh	1908	1908
Univ. of Md., 1907.		

Name and Address.	*Licensed.*	*Joined State Society.*
Moore, J. L., Wendell	1886	1892
P. and S., 1886.		
Mordecai, Alfred, Raleigh	1914	1916
Univ. of Maryland, Balt., 1914.		
Penny, J. A. J., Neuse	....	1904
Univ. of N. Y., 1861.		
Powers, J. B., Jr., Wake Forest	1907	....
Columbia Univ., Coll. of P. and S., New York City, 1907.		
Procter, I. M., Jr., U. S. Navy	1915	1916
Univ. of N. C., Chapel Hill, 1913; Univ. of Pa., Phila., 1915.		
Rankin, W. S., Raleigh	1901	1901
Univ. of Md., 1901.		
Ray, John E., Jr., Raleigh	....	....
Cornell Univ., 1912.		
Ray, O. L., Raleigh	1899	1904
Univ. Coll. of Med., Va., 1899.		
Riggsbee, A. E., Morrisville	1909	....
Univ. of N. C., 1909.		
Robinson, Leigh Fowler, Raleigh	....	....
Jeff. Med. Coll. of Phila., 1912.		
Rogers, J. R., Raleigh	1886	1904
P. and S., Balt., 1886.		
Root, A. S., Raleigh	1911	....
Univ. of Pa., 1911.		
Royster, H. A., Raleigh	1894	1895
Univ. of Pa., 1894.		
Royster, W. I., Raleigh	1869	1869
Bellevue, 1868.		
Shore, C. A., Raleigh	1909	1909
Johns Hopkins, 1907.		
Sorrell, L. P., Raleigh	....	1904
Med. Coll. of Va., 1875.		
Stancell, W. W., Raleigh	1906	....
Univ. Coll. of Med., Va., 1906.		
Templeton, J. M., Cary	1882	1904
Balt. Med. Coll., 1882.		
Thompson, H. A., Raleigh	....	....
Thompson, S. W., Neuse	....	1904
Med. Coll. of Va., 1875.		
Turner, H. G., Raleigh	1907	....
Univ. of Pa., 1906.		
Underhill, H. P., Wendell	1901	1901
Univ. Coll. of Med., 1901.		
Watson, John Blois, Raleigh	1908	....
Univ. of N. C., Chapel Hill, 1908.		
West, L. N., Raleigh	1912	1915
Jefferson Med. Coll., Phila., 1912.		
Wilkerson, Thaddeus Earl, Raleigh	1914	1915
Univ. Pa., 1914.		

Name and Address.	*Licensed.*	*Joined State Society.*
Wright, J. B., Raleigh	1899	....
Univ. Coll. of Med., 1899.		
Young, L. B., Rolesville	1886	1907
P. and S., Balt., 1886.		

WARREN COUNTY SOCIETY.

President, P. J. Macon, Warrenton	1883	1883
Univ. of Md., 1883.		
Secretary, C. H. Peete, Warrenton	1906	1906
Univ. of Va., 1903.		
Holt, T. J., Wise	1904	1904
Med. Coll. of Va., 1904.		
Macon, G. H., Warrenton	1910	1910
Univ. Coll. of Med., Va., 1910.		
Norton, Nathaniel D., Norlina	1909	1911
Univ. Coll. of Med., Va., 1909.		
Perry, M. P. (Hon.), Macon	1884	1884
P. and S., Balt., 1884.		
Rogers, W. D., Warrenton	1913	1915
Jefferson Med. Coll., Phila., 1913.		

WASHINGTON-TYRRELL COUNTY SOCIETY.

President, M. H. Hardison, Creswell	1871	1904
Washington Univ., Md., 1870.		
Secretary, W. H. Ward (Hon.), Plymouth	1886	1900
Univ. of Md., 1881.		
Flowers, C. A., Columbia	1907	1907
P. and S., Balt., 1905.		
Gilmer, B. H., Cape Charles, Va	1910	1910
Univ. Coll. of Med., Va., 1903.		
Hasley, B. F., Roper	1894	1894
Vanderbilt Univ., 1893.		
Hassell, J. L., Creswell	1886	1908
P. and S., Balt., 1886.		
Marriner, N. B., Belhaven	1903	1908
Univ. Coll. of Med., Va., 1903.		
Speight, J. W., Roper	1885	1908
Kentucky School of Med., 1885.		

WAYNE COUNTY SOCIETY.

President, E. C. Person, Pikeville	1904	1904
Med. Coll. of Va., 1904.		
Secretary, C. F. Strosnider, Goldsboro	....	....
Bizzell, T. M., Goldsboro	1908	1908
Univ. of Md., 1908.		
Cobb, W. H., Goldsboro	1889	....
Jeff. Med. Coll. of Phila., 1889.		
Cox, B. W. P., Goldsboro	1915	....
N. C. Med. Coll., 1915.		

Name and Address.	*Licensed.*	*Joined State Society.*
Daniels, O. C., Goldsboro	1903	....
Med. Coll. of Va., 1903.		
Faison, W. W. (Hon.), Goldsboro	1883	1904
Jeff. Med. Coll., 1878.		
Ginn, T. L., Goldsboro	1901	1904
Med. Coll. of Va., 1901.		
Ivey, H. B., Goldsboro	....	....
Jones, Clara E., Goldsboro	1894	....
Woman's Medical Coll. of Pa., Phila., 1894.		
Miller, R. B., Goldsboro	1900	1901
Med. Coll. of Va., 1898.		
Patrick, James Eliakim, Seven Springs	1900	....
Univ. Coll. of Med., Richmond, 1900.		
Person, Hector McLean, Saulston	1913	
N. C. Med. Coll., Charlotte, 1913.		
Robinson, M. E., Goldsboro	....	1880
Wash. Univ., Balt., 1870.		
Smith, R. A. (Hon.), Goldsboro	1882	1882
Vanderbilt Univ., 1879.		
Smith, W. H., Mount Olive	1907	1908
Univ. of Pa., 1906.		
Spicer, John, Goldsboro	1890	....
Bellevue Hosp. Med. Coll., N. Y., 1889.		
Steele, W. C., Mount Olive	1891	1894
Univ. Md., 1894.		
Sutton, W. G., Seven Springs	1889	1896
Jeff. Med. Coll., 1889.		
Wilkins, J. W., Mount Olive	....	....

WILKES COUNTY SOCIETY.

President	....	....
Secretary, C. S. Sink, North Wilkesboro	1912	1912
N. C. Med. Coll., 1912.		
Duncan, Julius E., North Wilkesboro	1907	....
Univ. Coll. of Med., Richmond, 1907.		
Gilreath, Frank H., North Wilkesboro	1898	....
Univ. of Nashville, 1898.		
Horton, Wm. P., North Wilkesboro	1896	....
Balt. Med. Coll., 1892.		
Hutchins, Evan Marshall, North Wilkesboro	1896	....
N. C. Med. Coll., Charlotte, 1896.		
Pegram, R. W. S., Wilkesboro, R. F. D. 2	1894	1908
Balt. Med. Coll., 1892.		
Somers, L. P., Osbornville	1889	1890
Univ. of Md., 1897.		
Turner, J. M., North Wilkesboro	1885	1904
Univ. of Louisville, 1881.		
White, J. W., Wilkesboro	1889	1890
Jefferson Med. Coll., Phila., 1889.		

WILSON COUNTY SOCIETY.

Name and Address.	*Licensed.*	*Joined State Society.*
President, E. T. Dickinson, Wilson	1895	1895
Med. Coll. of Va., 1895.		
Secretary, E. L. Strickland, Wilson	....	....
Anderson, W. H., Wilson	1904	1903
Univ. of Va., 1902.		
Anderson, W. S., Wilson	1880	1880
Washington Univ., Balt., 1868.		
Barnes, B. F., Elm City	1902	1902
Univ. of Md., 1902.		
Best, H. B., Wilson	1907	1907
Univ. of N. C., 1907.		
Eagles, C. S., Saratoga	1909	1909
Univ. of N. C., 1909.		
Grady, L. V., Taylors	1913	1914
N. C. Med. Coll., 1913.		
Harrison, J. S., Elm City	1905	1908
Med. Coll. of Va., 1903.		
Herring, B. S., Wilson	1901	1901
Univ. of Mich., 1900.		
Hoover, H. R., Wilson	1892	....
Balt. Med. Coll., 1891.		
Lamm, I. W., Lucama	1899	1899
Univ. Coll. of Med., Va., 1899.		
Lewis, G. W., Wilson	1885	1892
Univ. of Md., 1886.		
Moore, C. E. (Hon.), Wilson	1875	1875
Bellevue Med. Coll., 1875.		
Moore, E. G., Elm City	1883	1890
Univ. of Md., 1883.		
Moore, K. C., Wilson	1909	1910
Univ. of Mich., 1909.		
Person, T. E., Stantonsburg	1911	....
N. C. Med. Coll., 1911.		
Powell, H. H., Stantonsburg	1911	1914
Med. Coll. of Va., 1911.		
Saliba, M. M., Wilson	1910	1910
Balt. Med. Coll., 1897.		
Schubert, L. H., Wilson	1900	1909
Tenn. Med. Coll., 1900.		
Smith, G. A., Black Creek	1893	1894
Louisville Med. Coll., 1887.		
Swindell, C. L., Wilson	1909	1909
Univ. of Md., 1909.		
Washburn, B. E., Wilson	1912	1912
Univ. of Va., Charlottesville, Va., 1911.		
Williams, A. F., Wilson	1901	1901
Univ. of Md., 1901.		

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HEALTH OFFICERS' ASSOCIATION

TRANSACTIONS

OF THE

NORTH CAROLINA

HEALTH OFFICERS' ASSOCIATION

SEVENTH ANNUAL SESSION

ASHEVILLE, N. C., MONDAY, APRIL 16, 1917

OFFICERS 1918.

President—Dr. D. C. Absher.....Henderson
Vice-President—Dr. M. T. Edgerton.....Greenville
Secretary-Treasurer—Dr. George M. Cooper.....Raleigh

OFFICERS 1917.

President—Dr. Arch Cheatham.....Durham
Vice-President—Dr. D. C. Absher.....Henderson
Secretary-Treasurer—Dr. George M. Cooper.....Raleigh

TRANSACTIONS

OF THE

NORTH CAROLINA HEALTH OFFICERS' ASSOCIATION

SEVENTH ANNUAL SESSION

Dr. D. E. Sevier, Asheville: The seventh annual meeting of the North Carolina Health Officers' Association will come to order. We will be led in prayer by Rev. R. F. Campbell, D. D., pastor First Presbyterian Church, Asheville.

INVOCATION.

Rev. R. F. Campbell, D.D., Pastor First Presbyterian Church, Asheville.

Our gracious heavenly Father, we come to Thee with grateful hearts this morning for the mercies and blessings that Thou hast bestowed upon us, for the guidance of Thine own hands in the duties that have fallen to our lots. We are sorry that we have not fallen in with Thy guidance with greater fidelity, and we come with humble repentance for every neglect of opportunity that has come to us to serve Thee and to serve our fellows about us.

Now we are together to consider one of the most important interests that encounters us this morning, the health of our State, and we pray Thee that we may have that wisdom which comes down from above, so that we may have the courage to go in the face of opposition to carry out the plans that we form for the uplift of mankind.

We pray Thee to let the blessings of God be upon us in our own personal lives. Remember our families, remember those to whom we minister; and then we beseech Thee that we may have the help of an Almighty hand in the delicate duties to which we are called.

Bless the sections of the State from which we have come, and grant that this State and this Nation may be the object of Thy special care and visitation. We pray Thee that we may each be patriotic citizens, too, willing to sacrifice and to suffer, and to do all in our power as genuine lovers of the country that has given us birth and that has thrown around us all our days its protecting care.

Help us to be loyal to every institution that has been established for the uplift of man and the extension of that knowledge which will bring health and peace and prosperity.

Now hear us in this prayer; bless the homes from which we come, the loved ones from whom we have been separated for a time, and watch over them in Thy good providence until we shall be brought together again, we ask in Jesus' name. Amen.

Dr. D. E. Sevier: Next will be the address of welcome by a man who needs no introduction. He stands today at the head of his profession as a specialist in tuberculosis, and he is known throughout the United States as well as in foreign lands. I am glad to tell you that he is one of the men who established the City Health Department of the city of Asheville, and who fought for eight long years and won out over the politicians of Buncombe County in establishing the meat inspection of Asheville. He was also instrumental in bringing about a certified milk commission, which you will have an opportunity of observing today. He has ever and always been for all progressive measures, and it has been the wish of the Buncombe County Medical Society when they had a difficult matter to overcome to place him as chairman of the committee. Why? Because this man does not know the word "Fail."

It gives me great pleasure to present to you Dr. Chase P. Ambler of Asheville.

ADDRESS OF WELCOME.

C. P. Ambler, M.D., Asheville, N. C.

Mr. President and Members of the Health Officers' Association:

The city of Asheville is doubly honored this week in entertaining the State Medical Society and your convention of health officers. It has fallen to my lot to welcome you to Asheville as medical men, and it is a sincere pleasure to extend this welcome, not only on behalf of the profession, but on behalf of the city, the county, and the whole western part of the State.

Asheville for many years has been a convention city. All of the larger organizations of the State and many of the national organizations having met here. She is, however, proud today to receive the profession of the State, and, as I have said once before, particularly proud to greet you as state health officers.

The past few years have made great strides in the work in which you are engaged. Probably no more important office is now held in our counties than the whole-time health officer; such of you as hold this position we particularly want to congratulate, both upon your preferment and upon the unselfish way in which you are giving your time, for meager consideration, to the health of your community. Politics for a long time has interfered with health matters in our State; it has,

however, only been due to the fact that the people themselves did not recognize what could be accomplished along health lines, or protective medicine.

I know of no other profession that has labored for generations and is laboring today with an idea of working themselves out of a job, but am well satisfied that if every physician in the State could see the day come when there would be no need of physicians each would gladly surrender his present occupation and take up something else. To you, who are actively engaged in carrying preventive measures into the rural communities, we wish to say that the work which you have already accomplished is something of which you can be proud and that the future holds much in store for you. To those of you who come from counties where they have no whole-time health officers, we extend our sympathy to both you and to your people. We can only urge that you use every endeavor to acquaint your people with what is being accomplished in those counties where a whole-time officer holds office. We only wish that every county in the State was so fortunate as to have an equally energetic and efficient whole-time health officer as we have here in Buncombe County.

The profession of our county claim that the results which our health officer has accomplished during the last two years in the abolishment of typhoid fever alone has been of inestimable value to the county. That typhoid fever has become an almost negative quantity in the county, as it has for many years been in the city of Asheville, and that, so far as the outlying districts are concerned, this has been accomplished by the far-sight of our county commissioners in employing Dr. Dan Sevier as a whole-time county health officer.

If one could but for a few minutes consider what has been accomplished, not only in typhoid fever eradication, but in the question of smallpox, scarlet fever, summer complaints of children, improvement of water supply, installing more modern sanitary arrangements, the improvement of sanitation to our school houses, the improvement taking place in the sanitary arrangements of our rural homes, the lower death rate from infectious diseases, less days lost from work on account of sickness, the lessening of suffering, fewer children left orphans, the great improvement in the eradication of flies; when, I say, one takes into consideration the great change which has been made along these lines, the nominal salary which is paid the whole-time officer is so absurd in proportion to results accomplished that one cannot for one minute understand how any county can be without such officer.

In our county of Buncombe health matters have during the past twenty years made great strides. We do not know of one single health measure which has been enacted as a law or enforced by the various county officials which has not been fathered, advocated, and pushed by the medical profession. In the city of Asheville the medical profession were the first to ask for better water supply with result we now have the finest in the world. The medical profession has advocated the abolishment of open closets and extension of water mains and sewers, with result that very few open closets exist in the city today, and plans are now prepared for the abolishing of these. We took up the question of pure milk and fought it to a finish, with result probably no place in the South has more cause to be proud of the milk supply than Asheville. We took up in our Buncombe County Medical Society the question of meat, food, and milk inspection and, although it took eight years to get meat inspection and were year after year turned down in the legislature by narrow minded selfish politicians who were playing to their constitutents in the rural communities, we finally secured such measure. The profession of our county were the first to see enacted and enforced an anti-expectoration ordinance, the members of the Buncombe County Medical Society subscribed the first money to carry on a campaign for the destruction of flies and, although the people of the community laughed at us and ridiculed us, they have learned that flies can be eradicated. Practically everywhere they are following in our footsteps as we today get letters from all over the world asking for literature as to fly prevention.

No place in the country has more drastic and better enforced laws on the matter of infectious diseases; notwithstanding the fact that some of these laws have worked a hardship on some of the profession of the city, this law was enacted and enforced by the profession. The good work that has been done in Asheville is now on a sound basis; is recognized by every citizen in the county as a necessity; no politician would dare to undertake to erase the laws; no official would dare to advocate their nonenforcement. It has been the successful way in which these matters have been conducted in the city that now makes it possible for the same measures to be extended into the rural communities. While politics and red tape will occasionally attempt to halt the work, they both have to stand aside when they find the medical profession as a unit are demanding health measures.

If any of you come from those communities in which antagonism against such laws and such measures are continually cropping up, do not be discouraged, but simply take it as an indication for more intelligence, more energy and greater fight; if you find that at times the

opposition becomes so great that matters appear hopeless we would advise you to carry the case to the profession of your community; if you can secure their coöperation and endorsement, if you can enlist their assistance, if you can get them with you, then opposition will all fade away, for the simple reason that the people as a whole are now coming to realize that the doctors are sincere and are only acting for the good of the community in which they live, when they take this position along health lines.

The tendency of the times is to carry health measures into our public schools, and this is as it should be. If we cannot have the laws today that we should have in this generation, they certainly will come to pass and will be enforced in the next generation if we will only instill into the minds of our children that the handling of disease should be and must be along the lines of preventive medicine. Personally, I believe that a little less Greek, a little less Latin, a few hours each term less of dead languages, and a little more common sense, a few first principles, along the lines of preventive medicine, some instruction as to the care and keep of the body, and we would see our children grow up healthier, happier and more able to meet the battles of life, both physically and mentally.

I understand that your organization is particularly interested in preventive medicine, and in this we wish to congratulate you. Moreover, we wish to congratulate ourselves that you have selected our city and are to hold your meeting here, and, again as I said in the beginning, as the representative of the Buncombe County Medical Society, representing the city of Asheville, representing Buncombe County, we bid you welcome and wish to extend to you the hospitality of our city and community, and only trust that your meeting here will result in the extension of the great cause of preventive medicine.

Dr. D. E. Sevier: Next will be the response to the Address of Welcome by Dr. Chas. O'H. Laughinghouse of Greenville. Dr. C. S. McLaughlin, Mecklenburg County Physician, of Charlotte, should have responded. This will be an impromptu talk by Dr. Chas. O'H. Laughinghouse. I say that to let you see what he can do offhand.

RESPONSE TO ADDRESS OF WELCOME.

Dr. Chas. O'H. Laughinghouse, Greenville.

Mr. Chairman, Ladies and Gentlemen:

This comes to me almost as suddenly and as much of a shock as if I had been peremptorily ordered to the front. Verily I am not only conscripted, but ordered to immediately appear on the field to substitute for Dr. McLaughlin. Conscription is new, but substitution is not new to me; it seems sometimes it is almost my middle name. Not long ago I was stopped in the road by an old colored woman, who said: "Doctor, I want ter know if you can't git me out'n a trouble I has been in for seventeen or eighteen year, ever since I turnt fool and married Jeems. You knows Jeems, you know he aint no manner 'er count; ev'ything he do seems like aint nothin'; and all I kin git he comes and gits and spends for licker, and ev'ything else sep sumpin' he aut ter have. Aint dere nothin' I kin do to git rid uv him?" I said, "I think you can get a divorce." She said, "Yes, Doctor, I is heared about dem things. Is you got any uv 'em, Doctor?" There I was being pushed into substituting again. I said, "I think a lawyer can give you one." She says, "Doctor, what is dey wuth?" I said, "$25.00 or $30.00." She says, "No, sir; all dat money to git rid uv dat nigger? I aint er gwine to spend it dat way; he aint wuth it."

I feel, gentlemen, that an attempt on my part to respond to this Address of Welcome is not worth your time, but when this Society asks me to do anything, even though it is to substitute, it is my pleasure to attempt to do it, whether it is done well or badly.

It was a very great delight to me to come back to Asheville again. Just out there in that little summer house I made love to my wife. It seems whenever I come to Asheville I get in serious business. Right in this hotel I spent my honeymoon. Among the health workers of North Carolina I feel that I have got the warmest, best, and finest friends that any man ever had. We know that when we come to Asheville we are coming not only to be delighted with the beauties of Asheville and its people's hospitality, but we are coming to be taught. I don't think I will go wrong in saying that there is no place of its size in the South that has done more for public health than has the city of Asheville. There is no phase of health work that cannot with profit be studied through observing the ways and means and methods which are put into practice by Asheville's people and Asheville's doctors. So we thank you, gentlemen, for the privilege of coming here, and when I say "gentlemen," I mean the citizens of Asheville. We assure you that we

will undertake to imbibe as much as possible in a few days of what you have to give in the way of information, we assure you that we deeply appreciate your hospitality and we assure you that we will go back to our homes delighted at the pleasure and the privilege of having been the guests of such splendid hosts.

Dr. D. E. Sevier: I wish to announce that the Entertainment Committee desires all the physicians present to be here at eleven o'clock to be ready to go to the Vanderbilt estate. Do not be out of place, or you will be left.

Next is the President's Annual Address, Dr. Arch Cheatham, Health Officer Durham County, Durham.

PRESIDENT'S ANNUAL ADDRESS.

Dr. Arch Cheatham, Durham.

Mr. Chairman and Members of the Health Officers' Association:

The people of the State expect us to exercise leadership in health matters; leadership of the frankest sort and, therefore, it is of the utmost importance to the State that we, who attempt to be leaders in health work in our respective communities, should come together in common council to consider the affairs that the whole State is concerned in, but we, as individuals, have to deal with.

It is of great importance to the State to have the Health Officers gather in council with a united purpose for the best interests of the entire State. There are many fundamental conditions which are difficult and complex when treated independently, but are easy when treated by coöperation. Many of us are too independent, acting on our initiative and under our own guidance, often getting into trouble, when a few lines to a neighboring Health Officer, or to the State Board of Health, would relieve our worrying or, at least, we would have some one else to help share our responsibility. So it seems to me that by coöperation we may render a better service to our respective counties and cities and, therefore, to the State.

It is of equal importance to those of us upon whom primarily rests the duty of enforcing the laws which are for the protection of the public health of the city and county, that we should be in close touch at all times with the State Board of Health (if not under direct control).

As a concrete example of coöperation and noncoöperation, permit me to call your attention to the epidemic of cholera in England, in the year 1849. The public became so aroused that the clergy was resorted

to, (the old way of arresting epidemics) and, to allay the fears of the people, they set a day of national humiliation and prayer. A large and influential committee of clergymen was selected to visit the Prime Minister and request him to issue the usual proclamation. His reply was "Go back to your homes and make them and their surroundings clean and keep them clean, then ask the Almighty to bless your efforts at protection against the pestilence." The religious classes and the clergymen were shocked at his irreverence and his reliance on such a trivial measure for the protection against a pestilence sent by God as a punishment of the sins of the people. The day of fasting and prayer was held under the sanction of the Church throughout England. The cholera came and wrought havoc in the country, villages and cities. It was checked by neither the prayers of the clergy nor the fumes of burning sulphur in the streets and houses. The Prime Minister's advice was not followed, but was the universal subject of ridicule.

After the disappearance of cholera, the Registrar General investigated the results. The toll was heavy. In all England he found but one bright spot in the dark picture. It was a small interior town which reported "Not a single case of cholera has occurred among its people, though it visited all the neighboring villages with great mortality of the people." On inquiring as to the reason that the hamlet was spared it was learned that they had followed the Prime Minister's advice, and had not only thoroughly cleaned the homes, the streets and all waste places, but had appointed a Vigilance Committee with full power to enforce cleanliness. It further appeared that not only was the town saved from cholera, but all forms of disease were greatly diminished.

Only one town in all England followed the advice of the higher authority, and the people coöperated with the local authorities. Oh, that the Health Officers of the counties, towns and cities of North Carolina could get full and free coöperation in their work. Thoroughly cleaned houses, streets and all waste places, and a Vigliance Committee to cooperate with the Board of Health—Ideal.

There are many agencies in the community that must be harnessed and used in coöperative health work. Perhaps the most difficult task in getting the county organized into a coöperative community is that of getting the board of county commissioners, the board of city aldermen and the board of education to harmonize and support and coöperate with the board of health. Fortunate is the superintendent who can or who has harmonized these great factors in his work; for on them rests the foundation of permanent and successful health work in any county.

Then we must have the support and coöperation of the County Medical Society. Let it not be forgotten that an ounce of persuasion is worth a pound, yea, many a pound of drive with these gentlemen, yes, and with the average man. We must court the coöperation of the churches, the schools and all civic associations, white and colored.

The large industrial plants must not be overlooked. We must seek the coöperation of all and the ill-will of none, remembering that "there is no dog so sorry but that some one will listen to his bark." I would not have you believe that I do not favor the use of the strong arm of the law; but I believe it should be the last resort. I know that a hasty resort to it has reacted and hindered my work.

In this day and time, in the face of the rapid and wonderful advancement in sanitary and health laws, neither the people nor the doctors have kept up; therefore, we must educate and not drive. You can give any board of health unlimited financial support in a community that is self-governing, and its work will be a failure unless you educate the people to coöperate and support the work.

One of the greatest factors in educating the people is by coöperation with the newspapers. Ask the newspapers to coöperate with you, and you will meet with a generous response. The public is eager for news about preventable diseases and better health in the community, and the editors and reporters are anxious to supply their readers with the kind of information they are seeking. It is up to you to supply the reporters with information concerning your work that will interest the public; at the same time not forgetting that the sale of advertising space is what they are dependent on to run their papers. Therefore, when you have special information and notices to give to the public, purchase space in the papers.

Dr. Paul Preble, of the United States Public Health Service, defines the functions of the Federal, State and Local Health Organizations as follows:

THE FEDERAL.

1. To prevent the importation of communicable diseases from foreign countries and their spread in interstate traffic.

2. To collect information of the prevalence and geographic distribution of disease and other pertinent sanitary information.

3. To investigate the causes of disease and to determine means for prevention and control.

4. To coöperate with and render assistance to State and local health authorities in matters pertaining to the public health.

5. To distribute information and literature regarding the prevalence, geographic distribution, causation, and prevention of disease.

THE STATE.

1. To enforce the State health laws.

2. To promulgate and enforce regulations to control the occurrence and spread of disease within the State, including quarantine.

3. To keep informed of the prevalence of disease.

4. To investigate epidemics and instances of unusual prevalence of disease, and to determine the conditions responsible for the epidemics or unusual prevalence.

5. To control the communicable diseases and prevent their spread.

6. To aid and assist local health authorities.

THE LOCAL.

1. To urge and secure the adoption of such local legislation as may be necessary for the protection of the public health.

2. To adopt and promulgate such rules and regulations as may be necessary in maintaining the health and sanitary conditions of the community.

3. To secure adequate appropriations and approve expenditures.

4. To consult with and advise the Health Officers in problems of importance or of an emergency nature as they may arise from time to time.

I believe that all health work should be organized along the lines indicated by Dr. Paul Preble, each department dependent on the other. The United States Health Service should be the main advisory head; the State Board of Health correlating its work with the United States Public Health Service, and the County Board correlating its work under the supervision of the State Board of Health. Not that the United States Department should control the States, or the States should control the counties, but each should be dependent on the other. The leading principle should be to place the executive authority, as far as possible, in the hands of the local Board of Health, so that the National and State Health Departments under normal conditions will act as a guide and advisory of the local Health Department.

Dr. Arch Cheatham: I want to recommend, first, that hereafter the Society elect its officers by nomination from the floor, and, second, that a five minutes' report from each county, setting forth the work done in the county, be made a part of the regular program of each annual meeting.

Now, if the Society acts on my first recommendation there will be no occasion to appoint a committee on nominations.

Motion to refer the President's recommendations to a committee on resolutions; seconded by Dr. W. S. Rankin. The motion prevails; and the resolution is given to the committee.

APPOINTMENT OF COMMITTEES.

Committee on Nominations—Dr. L. B. McBrayer, Chairman; Dr. M. T. Edgerton and Dr. D. E. Sevier.

Committee on Resolutions—Dr. W. M. Jones, Chairman; Dr. John Thames and Dr. C. S. McLaughlin.

Auditing Committee—Dr. C. V. Reynolds, Chairman; Dr. A. C. Bulla and Dr. E. F. Long.

Dr. Arch Cheatham: The Secretary's report is next in order.

Dr. G. M. Cooper: Before I read my report I should like to remind the members that our Association is open to any member of the board of county commissioners, any member of the county board of education, any mayor of any town of North Carolina, any member of any board of aldermen, as well as to any health officer, city or county, or county physician; in other words, to anybody in any official position interested in public health. I will say this, too, that we have the best attendance to begin with this morning that we have had in four years, and that bodes well for good health in North Carolina for the next year. We have the records of the vital statistics at the State Board of Health offices, which will show that those counties that have officers that attend regularly have a record in disease prevention to be proud of. The counties that never send their representatives here, that are never heard from in this session, invariably have a backward and unawakened public health spirit.

REPORT OF SECRETARY-TREASURER.

Mr. President and Members of the Association:

No minutes of the last meeting are necessary because the full account of our proceedings appears in the Transactions of the State Medical Society of which we are all members. I take this means of again thanking the Society and its Secretary, Dr. Hays, for this courtesy. I wish also to thank the press service of the State Board of Health and the newspapers of the State for aiding in calling attention to this meeting.

With the coöperation of your President, Dr. Cheatham, and Dr. Rankin, Secretary of the State Board of Health, I have prepared a program for this meeting. I wish to thank those called on for aid in preparing papers, addresses and discussions for their willing compliance. I wish to especially thank the Asheville Program Committee for valuable assistance in arranging for this session.

I have prepared and mailed out 338 multigraph letters to health officers and county commissioners relative to getting a good attendance at this time. I have also sent out numerous personal letters.

As Treasurer, I beg to report as follows:

Total funds in hand at close of Durham meeting	$22.66
Interest on above funds to April 11	.90
Received membership dues from one member, April 10	1.00
Total receipts	$24.56

Disbursements

April 11 To Alfred Williams & Co., one registration book	$ 1.00
Balance on hand	$23.56

On account of the fact that the Association is a valuable clearing house for the dissemination of public health information to the general public, all expenses of multigraphing, stationery, postage, etc., have been paid by the State Board of Health.

Respectfully submitted,

G. M. Cooper,

Secretary-Treasurer.

Dr. Cooper: I will say that the committee had trouble in auditing my books last year. This year I took the precaution to get a certified cashier's check. I think the books should be audited this morning without trouble.

Just a moment about the registration book. Last year, after the meeting, about a month after we got back home, I got a letter from the authorities of one county in North Carolina wanting a certificate stating that their county physician attended the Durham meeting. I did not know whether the gentleman was there. I did not know him personally, nor did any man I could get hold of. I did the only thing I could do; I wrote Dr. Hays and asked him if he was registered at the meeting of the State Medical Society. He wrote back the gentleman was not recorded. He might have come on Monday and gone back without attending the Medical Society meeting. I don't know and our authorities don't know for sure, but circumstantial evidence tends strongly to show that instead of attending the Durham State Health Officers' meeting he took the time he had off to visit his people in another city.

I want to earnestly request every man here today to register.

Dr. Arch Cheatham: That completes the program up to going over to Biltmore.

Dr. W. M. Jones: Suppose before we start to Biltmore that the committees get together during this time so that we will be ready to get together.

It is moved and seconded that committees confer; motion seconded and carried.

EXPLANATION NEW STATE-WIDE QUARANTINE LAW.

W. S. Rankin, M.D., Raleigh, N. C.

Before taking up the law, section by section, I wish to state the purpose of the law.

I do not think there is any difference of opinion among sanitarians in this country on the question of local or central control of epidemics or contagions. Until this law was passed the control of epidemics was treated as a local matter entirely. The old idea had been, and the old practice had been, for any county that wanted to adopt and enforce reasonable rules and regulations for the control of epidemics to do so, but if a county did not wish to control contagious diseases, there was no law requiring the county to exert itself. As a result of such a practice you have this situation, if I may illustrate: We will take this county, Buncombe. Suppose Buncombe County has the very best kind of quarantine rules and regulations and they are properly enforced in every respect. Buncombe County is helpless to protect herself, with her hundred-mile border, from contagion coming from possibly careless neighbors. Therefore it is necessary in the control of contagions for the State to have power over the county, that it may call timely attention to the fact that an epidemic is in a neighboring county and see that such a county enforces the necessary rules and regulations that will protect its neighbors. You can reverse the process. You have an infectious focus here in Buncombe, and all the neighbors under the old practice would be helpless to protect themselves if Buncombe was careless. It is clear, therefore, that the control of the spread of contagion is not an intracounty but an intercounty problem. It is absolutely necessary for the State to have jurisdiction. There is no difference of opinion on this point among sanitarians.

Then there is a second reason why the State of North Carolina should recognize the control of contagion as a state matter. I may illustrate by giving you the actual experience of our State last summer when, during the infantile paralysis scare that prevailed throughout the country, we had citizens of North Carolina detained in Pennsylvania, New York, and other places by the authorities of those states. The authorities of other states would hold a citizen of North Carolina and would wire to Raleigh asking, "Is there any infantile paralysis in Jamestown, North Carolina?" or Belmont, or somewhere else. Under the old system of the State having nothing to do with it, no reporting of the contagious diseases to the State, we could not answer such an inquiry. We had to

wire the local health officer. Usually he would wire back that he did not know of any cases of the disease, and we would have to wire that rather indefinite and delayed information to the state making the inquiry. Frequently the Federal Government asks, "What contagion have you in North Carolina at present?" That inquiry was very frequent last summer. Occasionally we have inquiries from other states. Some citizen of another state wants to visit in North Carolina and wishes to know if there is any measles, or whooping cough, in Clinton, or somewhere else. It is very embarrassing to have to stand up in a National meeting, as I had to do last August, when we had a conference composed of the members of the state boards of health to consider the control of infantile paralysis, and have to admit that we had no legal or official data on the prevalence of the disease in our State.

There is still a third reason why epidemics and contagions should be regarded as a state matter primarily and only secondarily a local matter. Suppose we had scarlet fever beginning in Catawba County and it was duly reported. It was shown by a tack map of North Carolina. As the days went by and other cases came in we would see that the disease was traveling toward Statesville and on towards Greensboro; we could see the direction of the spread of the epidemic and to some extent its rate of travel. We then could notify county authorities two or three weeks ahead of the time it would reach a county. We could notify Dr. Jones, for example, four or five or six weeks before the epidemic would reach his county. He would not have to wait until he had cases reported to start to work. In other words, given the beginning of an epidemic in some county, we could put anticipatory measures into effect. This could be accomplished only through a state system of control.

DISCUSSION.

Dr. B. K. Hays: That has already been passed by the Legislature?

Dr. Rankin: The law does not become operative until the first of July. Four months between the enactment and the enforcement of the law was provided because it was recognized that it would require that time to organize the work, to prepare the literature, rules and regulations necessary for distribution.

The quarantine officer is paid a monthly salary for the work performed, and the amount he is paid is based on the population of the county. Fifteen dollars a month is the minimum; for counties with a population over 50,000 he is paid $50 per month. We have nothing to do with fixing the salary of the county physician. The law does say what he shall have for quarantine work. This law makes the county

physician quarantine officer for four years for the reason that too frequent changes would not be well on account of the time needed for one to become familiar with epidemiology, the rules and regulations and routine practice.

Dr. M. H. Fletcher, Asheville: Suppose a county refuses to appoint a health officer.

Dr. Rankin: In that case the Secretary of the State Board of Health can appoint one.

Dr. Fletcher: Has your experience been that the Attorney-General backs you up?

Dr. Rankin: Yes, sir.

Dr. Fletcher: In case there is an epidemic and the expenses exceed $10, who is responsible for that?

Dr. Rankin: The county can pay more than that. Section 10 provides "That the authorities of any county, town, or city may adopt such additional rules and regulations for the control of the diseases mentioned in sections 7, 8 and 9 of this act, and pay such additional fees and salaries as in the judgment of the authorities of such counties, towns and cities seem necessary."

Here is a section that allows a readjustment of salaries for county physicians: "*Provided further,* that county authorities may revise their understandings with those county physicians who are acting as both physicians to county charges and as quarantine officer and whose terms of office as quarantine officer shall expire in January, one thousand nine hundred and twenty-one, unless discontinued by death, resignation, or other disqualification, on a basis of compensation adequate to the new duties herein required; but in no case shall the compensation allowed for the services required by this act of quarantine officers be less than that herein named." Your county authorities can revise their understanding as to remuneration, as to your duties as county physicians, but they must pay you this amount for your quarantine work. They can revise that part of the salary that they pay for the treatment of county charges. You understand the county physician's office is terminable at the pleasure of the county anyway, so that that office is of an indefinite duration.

Dr. Fletcher: Under that law can you have a county physician, health officer, and quarantine officer?

Dr. Rankin: No, sir; your whole-time health officer always has to do the quarantine work. Your county physician can be quarantine officer or he may not be.

Dr. J. C. Braswell, Jr., Rocky Mount: I feel that there is very little to add to the discussion just given by Dr. Rankin. There are one or two points which have not been brought out as clearly as I would like for them to have been discussed. The first one that occurred to me is relative to the manner of enforcing the quarantine rules and regulations. If my interpretation of this law is correct, it is to be enforced by the County Health Officer or the County Quarantine Officer. As a rule the County Health Officer resides in the county seat and the present plan states that the rules and regulations shall be mailed to the head of the household. Unfortunately, we have quite a number of people who cannot read or write, and in such cases it is necessary for the postman or a neighbor to read and explain the quarantine rules and regulations. Personal experience has taught me that this plan does not work satisfactorily, as the notice received from the local Board of Health in such a manner often antagonizes the householder and the rules are not carried out. If it were possible for the County Health Officer or the quarantine officer to make a personal visit to all of these cases, I am convinced that the end results would be far superior. If a personal visit is made to the family suffering from a quarantinable disease and the rules and regulations are carefully explained by this party, it serves a twofold purpose: first, it helps to control the spread of the disease present in the household; and second, if the man understands the value of the regulations, he will be of much assistance to the Health Officer in enforcing such regulations in the same community. When you educate one party, he in turn helps you educate others; and, as you will readily agree, this is what we are all striving for.

The second question that arises in my mind, is relative to the expenses. Dr. Rankin has just stated that the county is held liable for all expenses which exceed ten dollars as allowed by the law. My reason for asking such a question is perhaps plain to some of the men from the eastern part of the State and is due to the fact that measles has been quite prevalent in that section during the past six months, and in some counties I have known of over seven hundred cases. You realize that ten dollars would not cover the cost in such cases, as the amount would be nearer seventy dollars.

I heartily agree with Dr. Rankin relative to the plan of swearing in all men who propose to carry out the rules and regulations as outlined by the State Board of Health. If a man is not willing to take an oath

to the effect that he will perform his duty to the best of his ability, then he certainly is not a fit subject to represent his State, city or county in the capacity of an officer of the law.

Dr. M. T. Edgerton, Greenville: Two years ago I had occasion to look up the laws on contagious diseases of about twenty or twenty-five states and I read a paper before the State Health Officers Association on this subject. I found that there are very few states that have uniform laws on the quarantine of contagious diseases. There are certain features about this law that I would like to raise a question in order to clarify it and get Dr. Rankin to answer. It seems to me that since the general tenor of this law is to put the quarantine of the contagious diseases in the hands of the State Board of Health, and that even though the local health officer should carry out the actual prosecution of the individual cases, it would be better if the prosecution came from the State Board of Health. The thing about it is that the average County Health Officer is more or less under political influences. He is bound to be influenced by local factors. "Self preservation is the first law of nature," and quarantine officers would have a great hesitancy in causing ill feeling for themselves with influential persons. If these prosecutions should come through the State Board of Health it would be more effective. Then he could say, "I am acting because the State Board of Health makes me act."

Another thing: It says you shall report each case to the State Board of Health within twenty-four hours. Dr. Rankin said this idea of having it reported to the State Board of Health was to trace the epidemic from one county to another. I fail to see the reason. For instance, if I should have a hundred cases of measles in Greenville, as I did in January, it would grow rather onerous to report daily, even though stamped envelopes were furnished. As I understand it, in the beginning of an epidemic there would be some reason of their reporting the cases, but it seems to me that if these reports were made weekly or monthly the State Board of Health would have a record and it would not be so much detail work.

The question of paying a man $35 a month and then saying that he is responsible because a citizen in a town twenty miles from where he lives has failed to carry out the law and that he is liable to prosecution seems to me to be asking a great deal of a man. When the health officer has a car and has the time to do this work, in a county forty miles across if a physician willfully makes up his mind he is not going to report his cases it is a very difficult matter to make him, and, as far as the parent is concerned, it is a much more difficult matter. Take the

average mother who has had a case of measles for two weeks, and I venture to say you cannot convict one out of two hundred. Personally I have always contended and still feel that the least prosecution that you do the better you get along. Some people think differently from that and some people agree with it.

Those are some of the main things that Dr. Rankin has explained, and some questions that arose in my mind as to the difficulty of enforcement.

Dr. Charles Daligny, Troy: Dr. Edgerton, who preceded me, I do believe has stolen my speech. His remarks were along the lines I had selected to make my own, and I hardly know what to add. As he said, if a way could be found by which the physicians in the county could be induced to report the quarantinable diseases, the quarantine officer would not be put to such a stress as he is at times. In Montgomery County they are all my friends, all good fellows, and I am at a loss what to do with them when they do not report as they should do. There are some who just won't do it. As far as forcing them, we are all physicians and we know how hard it is to even think of prosecuting any of them; one feels that he just can't do it. All in all, it is a tough proposition, and at times I do feel that if I could spank them it would be a great relief to me, but some are so much better men than I am that I would be afeard to undertake it.

These are all the remarks I have to offer.

Dr. J. A. Speight, Nashville: I think the quarantine is one of the most disagreeable duties with which any health officer has to deal. It is so because there are so few people that like to be quarantined. I have only been in this work three months and I know it has been one of my most disagreeable duties, although we have had very good results. We have had a health officer in our county for about three years and we have the people pretty well trained to quarantine regulations. Dr. Washburn and Dr. Braswell, who preceded me, are here today . I would like to hear from Dr. Washburn in regard to prosecuting the cases of willful violation.

I agree with Dr. Edgerton that we seldom get an indictment carried through successfully because we cannot prove the violation was willful. I have quarantined not only cases reported to me. If I stopped there I would not have gotten half the cases. If I had a case reported in a neighborhood I rode out there and I would find fifteen or twenty cases where one was reported. Those people did not know; they were willing to be quarantined if necessary. They said they did not know the law required them to report these cases, "I did not understand it was my

duty to report this." Well, what are you going to do with that class of cases? Another objection to the law is the compensation. If the counties adopt the amendment, why, it would not be enough to justify a man doing active work. It would require him to have an automobile or some means of getting about, unless he sits still and takes care of only those cases that are reported to him, and I do not think that would get half of them. I agree with the law in most of its phases. I think we will have to do something, and I expect this is about as good as we can do. It will be a step in the right direction. I did not catch, exactly, who was to do this indicting, who it was to go through, the County Health Officer or the State Board of Health. I would like to ask Dr. Rankin to make that clear to me.

Dr. E. F. Long, Lexington: I am practically new in the field of preventive medicine, having taken over this work in June of last year. During this period I have had, I suppose, about the usual experience in quarantine work.

An interesting situation presented itself last fall when measles came into our county almost simultaneously from three directions. The carrier, in each instance, had done his work so thoroughly that two schools had closed before I had notice of the existence of the disease. I immediately visited these communities, quarantined all the families affected, instructed the teachers and gave them suitable literature for distribution, through the pupils to the patrons of all the adjacent schools, excluding all exposed pupils during the period of incubation.

Notices were typewritten on the back of pamphlets, calling attention to the requirement that the head of every household must report the existence of contagious diseases to the county health officer within twenty-four hours. These notices were signed over the title of quarantine officer. Later we had a quantity of these notices printed, stating not only the legal requirements for householders, but containing the penalty for neglecting or refusing to do so. These were distributed through the schools as occasion demanded, to the homes of the different communities. The teachers and principals of the various schools in the county—about one hundred and five—had furnished a list of the susceptibility record, and, in addition, a list of the householders represented in each school, giving the correct name, address and first names of the children of school age. These lists are properly filed and afford accurate data concerning the susceptibility to contagious disease of each pupil enrolled in the schools of the county.

Where we had reason to believe that all the people in a community were not reporting contagious diseases in their families, we mailed notices direct from the office to each patron of the school or community

affected. This method of giving direct notice to the people concerned almost invariably secured prompt compliance with the law. It does not suffice to depend on the physicians to report contagious diseases because they do not see them all. The physicians probably see twenty-five per cent. of cases of measles and scarlet fever in mild epidemics. Therefore the people themselves must be taught that they are responsible for reporting quarantinable contagious diseases.

The quarantine officer can only do a limited amount of work, and his success in effecting adequate quarantine regulations is dependent on his ability to enlist the active support of every available agency. The principals and teachers of the schools are in position to render the most valuable assistance.

Every effort should be exerted toward securing the coöperation of the teachers and their activities directed in a manner calculated to secure the best results. We were able to limit the spread of the epidemics materially in the country districts, but were not able to prevent an epidemic of considerable proportions in the town of Lexington. Three cases had occurred during the early winter months. These were reported and quarantined promptly and no further cases occurred at this time.

Beginning about January 17, ten or eleven little girls and one little boy contracted measles in school, all coming from two grades. As none of these children had knowledge of an exposure we concluded that an unreported case, probably attending one of these grades, was responsible for the epidemic, which rapidly spread until 164 homes were quarantined.

Notices in the county papers calling attention to the legal requirement in regard to reporting contagious diseases, worded in a manner calculated to enlist the coöperation of all the people and stressing the responsibility of each family affected in protecting their neighbors' children, combined with the active support of the profession and school faculty, enabled us to quarantine the cases promptly. The school had been practically saturated by the first series of cases, so that a large percentage of the pupils contracted the disease. All contacts were promptly excluded during the period of incubation and the epidemic was practically limited to the second incubation contacts and the children in families affected by this contact. The most interesting phase of this epidemic of measles was the fact that practically all the families affected reported the cases in their families. The physicians reported the cases in their practice promptly, but in almost every case the family had recognized the disease and reported before the physician was called. Several days were spent in an attempt to isolate cases not reported, but

none was found. I attribute the results obtained in limiting the spread of these epidemics to an educational campaign directed at the combined purpose of teaching the citizens their duty to the State and to their neighbors.

I am not citing these experiences to boast of the little we have done, but to illustrate the fact that, in my opinion, the people can be educated to an extent that they will not mind reporting the existence of contagious diseases in their families any more than they mind going to church once they get into the spirit of doing so. Quarantine not only protects the neighboring homes against the affected one, but protects the affected home against the criticism and unneighborly feeling of the neighbors.

The same principle applies to the medical profession. We had no medical society worthy the name in my county for a period of several years until recently. It took several months to harmonize the differences, but the effort was ultimately successful and we now have a live society. This was accomplished by recognizing the differences and arguing the points at issue until an agreement was reached. I want to emphasize the fact that physicians and the laity can be taught to coöperate if we go to them openly, squarely and fairly.

Dr. J. S. Mitchener, Edenton: I agree with Dr. Long that one of the best means by which we can get our people interested in reportable diseases is the local papers. The first edition after I had posted my first placard I gave notice in the newspaper to beware of measles, and in it explained the legal obligation of every physician, householder, etc., to notify me of the existence of the required diseases. The people and local physicians were very good in complying. No reports came from the rural members of the profession. Of the laity many said, "We did not know." Educate our people and they will abide by the law.

These diseases should not only be reported, but if there be no other law covering the point this one should be far reaching as to disinfection of the excreta especially in typhoid and tuberculosis. I fear many do nothing with the typhoid stools.

The prosecution is a more delicate matter for the county physician than the county health officer. The former has a small compensation and relies upon his practice for a living. Dr. Edgerton spoke of the cause. If we put the legal step on the State unit who is to notify it? It comes back to the local officer. One check only do I see: require all city, county and state laboratories to report to each unit all the required diseases diagnosed by them. After all we must use common sense in this as in all matters.

Dr. Wm. M. Jones, Greensboro: I would like to say a few words relative to prosecution. I have had some little experience, only a little, and I do not care for any more. I believe that Abe Lincoln is given credit for the saying: "Never go to court, for if you win your lawyer gets the reward, and if you lose the other fellow gets it." We often hear it said that the letters "J. P." after the names of certain officials, stand for "Justice for the Plaintiff." Of course you are going to win your case before the "J. P.," and if the case stops here all is well and good, but, unfortunately for the plaintiff, it does not always stop with the verdict of the justice's court, but is appealed to the Superior Court. Now it is in the Superior Court that you are going to lose out, for the defendant is going to get a lawyer, and he will, on one pretext or another, get the case postponed, and finally, when it does come to trial, you will not be able to find your principal witness. And why? He has left the county, he has gone. This is not my idea of what will happen, but is simply a statement of what I have seen, as a matter of fact, to happen. So in my opinion you should never go to the court except as a last resort. In the great majority of incidences a little diplomacy will accomplish everything and more than will the court, even if you are so fortunate as to win in the one of last resort.

Dr. John Thames, Winston-Salem: The discussion this afternoon has brought out the fact that the local quarantine officers are responsible for the physicians not reporting to the quarantine officer. The question is, does the law require the quarantine officer to prosecute the physician or householder who does not report?

Dr. Rankin: He is required to enforce the law. It is a misdemeanor if he refuses to enforce the law.

Dr. John Thames: How does he know if the disease has been reported or not? I mean, how is he to know that it is a case? I am not like the doctor who said he was new in the work. I have been for twenty-three years a health officer, and nearly every Legislature has made changes in some part of the Quarantine Law. I have tried for all those years to convict somebody for not reporting quarantine diseases, and I have been told by the judges that you cannot convict without the evidence. When I found a case of a doctor who had not reported he said, "I have not made a diagnosis." I referred him to the law that requires him to report a suspicious case. He says, "I have not suspicioned it." I notify a household and remind them of their duty; they did not know it was their duty. I go to the next neighbor. They have a case and are willing to be quarantined if it is measles or whooping-cough. They say, possibly, "I thought I might have it, but I didn't

know I had to report it. Mrs. Smith says she is not going to report it." When questioned about it, she denies the statement. I want the Legislature, or somebody else, to tell the quarantine officers how they are to secure evidence for convictions. As far as I am concerned, I have given up all hope of convicting anybody so as to get a verdict. I may be penalized for not prosecuting them, but the judges say they cannot give me a verdict unless I can get the witness. That has been my experience for twenty-three years with a few exceptions. I am doing this to encourage the quarantine officers. I caught the idea that it is a matter of education, after all. I am proud of this law and I am glad we have a quarantine law, with all the other phases that are good, that we can report to one head office, and the quarantine officers can go to the head office for information.

Dr. W. S. Rankin: Referring to the question of Dr. Edgerton and Dr. Braswell as to the quarantine officer's going to see each case reported: I do not believe that a county quarantine officer would be paid enough, or can get enough pay from the county to justify him in doing that at the present time. I think we have got to do a lot of the rural quarantine work by registered mail and by special delivery. You understand the rules and regulations will determine whether the quarantine officer is to visit the case or is to notify the householder by registered mail. Those rules and regulations have not been adopted, have not as yet been written; so that that matter will come before the State Board of Health for discussion and determination. If the Board of Health should adopt the principle of having the quarantine officer visit each case, it is going to require an immense amount of work of the quarantine officer, and I doubt whether the amount of remuneration provided in the law would justify a man in doing as much traveling as he would have to do if he visited every case. If the quarantine officer is a whole-time health officer and he is required to visit all cases of contagions, and if that whole-time health officer has a plan of work, such a requirement will knock his plan of work to pieces. However, that is a matter to be determined, and a matter the Board of Health will consider and decide. It is one of the most important features to be considered. Quarantine by a personal visit is expensive. There are important differences between rural quarantine work and the quarantine work of a town or city.

As to enforcing the law: The difference between a resolution that the State Medical Society or the General Assembly might adopt and a law is that one suggests and the other requires. Does North Carolina

need a quarantine resolution or a quarantine law? That is a matter that has already been settled in this State, that quarantine laws and not quarantine resolutions shall be the means in attempting to control contagious diseases.

As to who prosecutes: The local man swears or affirms, and his oath is published in the county papers and the *Bulletin,* that he will enforce this law and its provisions. If he cannot take that oath, he cannot qualify. It is a sworn duty; it is as much a sworn duty, although it may be disagreeable, I grant you that—it is disagreeable for a parent to punish a child—it is as much his duty to report a known violation, it is as much his duty to enforce the law against a known violation as it is the duty of the solicitor to prosecute criminal cases in the court. The people of the county and the people of the State, knowing that an officer has taken a solemn oath to enforce a law entrusted to him regardless of its being personally disagreeable to prosecute a brother physician, will expect and demand that the county quarantine officer discharge his sworn obligation. The State Board of Health will insist upon this.

Now, Dr. Edgerton, you bring forward the question of evidence. How do we convict a man of theft? A lot of thieves are acquitted. Are we going to do away with the law for theft because we cannot convict *all* persons who are thieves? I suppose when it was first made a criminal offense to steal, it was very difficult to get a man convicted of theft. It is not so difficult today, but it is still difficult. The difficulty of conviction is not an argument against attempting conviction. I grant you that those who enforce the law should be very careful. The State Board of Health would be very careful as we are in enforcing the law relating to vital statistics. We would only indict a man whom we were all but certain of convicting. Neither the plaintiff nor the defendant settles an issue. It is determined by an officer representing the people. The State Board of Health would be extremely careful in prosecuting a local health officer. We would not prosecute a man whom we could not convict. You won't see the State Board of Health prosecute a local quarantine officer whom the local court and the Supreme Court will not decide against and in our favor. If we are going to be careful we will expect the local man to be careful. We will not expect the local quarantine officer to prosecute a man, a householder, or a physician on mere hearsay and lose his case. We will expect him to prosecute only known violations. You will not be able to prosecute many cases; convicting evidence will be difficult to secure; you will be able to prosecute successfully only a very few cases.

Last year I was talking to Dr. Alsberg of the Bureau of Foods and Drugs, and I asked him (we were discussing the question of false and fraudulent advertising of medicines) about how many prosecutions he had had per year. Dr. Alsberg said we have only about three hundred a year; but, he said, you will understand it is not necessary to prosecute all violators. If you prosecute a few the others govern themselves accordingly. We will only prosecute where we are almost certain of a conviction, and that is all we will expect of the local quarantine officer.

EXPLANATION OF NEW LAW PROVIDING FOR MEDICAL INSPECTION OF SCHOOL CHILDREN.

G. M. Cooper, M.D., Raleigh, N. C.

This bill was drawn by the Governor of North Carolina without dictation from anybody. It represents his own ideas, it was in his own handwriting, and I just mention that to explain that it seems the reference to the State Board of Health is quite frequent, but that cannot be helped.

Nobody in the world will deny the necessity of making an inspection of school children. The Empire of Japan has had a perfect system of inspection for thirty years, and yet we send missionaries to Japan. Furthermore, another thing I might mention is this, that last summer at Morehead City, among our own people that were enlisted in the militia for service on the Mexican border, fifty-five per cent. of the men turned down were turned down on account of physical defects which could have been prevented by the proper inspection and treatment in childhood. I want to take this section by section. Here, briefly, is the plan we want to follow. This is like death and taxes, it has got to be done, every three years, and the State Board of Health and State Superintendent of Education are charged with the responsibility of putting it into effect. We have got to fix it so as to take about thirty counties the first year and so on. These children include rich and poor, city and country, black and white—every school child enrolled in the public schools of the State. Our plan is to select about thirty-three of the best counties of the State, and what I mean is counties that are progressive, counties that want to do something for their children without being made to do it; then we can get the others later on in the three years, but we propose to take about thirty-three counties the first year. For the purpose of illustration we will take Catawba County, with about 30,000 people and 10,000 school children. That means the Catawba county commissioners will be called on to spend $750. That is the maximum

limit. Dr. Shipp would be designated, in all probability, as the physician to do this examining of the children. I will use Catawba as an illustration because it is one of the representative counties. Dr. Shipp will take these manuals, where everything is explained; he will have the County Superintendent of Schools to call every teacher in that county together, agreed upon by the State Board of Health, the State Department of Education and the county authorities. He will then explain thoroughly how to fill out one of these blanks. Then that teacher can fill the blank out. Whenever she fills out the blanks concerning this examination she turns them over to Dr. Shipp. Dr. Shipp takes his time, he must call for these children to be brought into his office on Saturdays between the hours of nine and five. That is arranged so as not to affect their attendance at school. They bring these children into his office, he sends for as many as he can properly examine. He goes over the blanks carefully and he can select up to 12 per cent. under this law, of the children there that he finds most defective. Take, for instance, the blank on teeth. If Dr. Shipp finds there is a child six years old—and any teacher can count the number of decayed teeth in the child's mouth—if he finds the child is six years old and the teacher has sent in a report of ten decayed teeth he knows that child has probably got a lot of temporary teeth beyond doing much for. Suppose a child is ten and there are ten defective teeth. Dr. Shipp knows that child seriously needs attention. He sends for the parent to bring the child to his office. He can examine something like twenty-five children in one day by giving a careful examination to each. If he finds all twenty-five of these children need attention by a dentist or a specialist, or a physician, he so informs that parent, to whom he gives a card, that is not patent to the world, but a matter between that family and Dr. Shipp. It is a triplicate card. He can fill it out, and he gives this parent one card, he can keep a card, and can send the third copy to the State Board of Health. Now, the county commissioners must provide for the examination of the children. Then it is up to Dr. Shipp to get the commissioners to agree to match dollar for dollar with the State Board of Health, with which money to get these children treated. As everybody knows, the great drawback has been found in getting parents to follow the advice, getting them treated. We find a great many of them are anxious to have the children treated, but are not able to do it. I have them to tell me all over the State that So and So wanted his child treated, but he did not have the money, and, therefore, he did not feel like coming up. We hope we can get the specialists and the dentists to agree on a reduced fee. If they do not there is but one alternative left, and that is for us to take this money and hire by the month a dentist or a special-

ist. We do not want to do that, and I do not think it will be necessary. Take Buncombe County; the county commissioners have an arrangement with an Asheville hospital to treat their indigents; the Watts Hospital provides for the treatment of indigent patients in Durham County, as does the Memorial Hospital at Eureka in Moore County. They are the only three I can think of. I have found that the physicians invariably open up their hearts and their skill to the poor children any time they need treatment, but this law makes no discrimination between anybody just so they are defective. It is a three-year proposition. Catawba is a large county. That is only $750 that those commissioners will have to provide for an inspection service which covers three years. It is a maximum expense of $250 a year, a mere matter of nothing to provide for the examination of children to give 12 per cent. of every school child in the county a thorough examination. Why does the law stop at 12 per cent.? Because 12 per cent. will represent the worst classes of defectives, and is a beginning, and if this 12 per cent. are treated properly will take out the worst. We have found this in the examination of over 20,000 school children in two years. This matter of treatment, you can figure this way. A great many counties will not have 10,000 school children; a lot will not have 8,000 or 6,000 or 4,000. Take the average at 10,000. There is a fund of $300 for that county for having defective children treated provided the county commissioners will match our funds, which will make a fund of $600. That is supposed to represent 40 per cent. of a reduced schedule. Now, the other $900 must come from their parents, and we certainly do not think we will have any trouble in getting the average parents to come across with the other $900, making a fund of $1,500, which, if we can get it on a proper schedule, will take care of a lot of children for dental treatment and specialty treatment. That is the plan that we propose, and we would like here in this meeting to select thirty or thirty-three counties. I hope to work in as many or all of the whole-time counties as we can because they have an organized force, and the commissioners will not be called upon for money to provide for the examination. It simplifies the matter for the whole-time health officer. It is a standardized piece of work done, and at the same time provides for the treatment of these children.

DISCUSSION.

Dr. D. E. Sevier, Asheville: I feel somewhat abashed to come before you to discuss this paper since it has been so ably discussed by Dr. Cooper. However, I wish to say, to my mind this is the grandest law that has ever been placed upon the statute books of North Carolina for the uplift of the human race and the protection of the county health

officer. I say the uplift of the human race because this law will force the boards of education in the various counties to select teachers who will be efficient, the teachers will have to be educated in order to detect the defects to be found in the school children; and I say a protection to the health officer for the simple reason it forces the superintendent of public instruction of the State, or the State Board of Education to take an active part, and it places a responsibility upon the county superintendents and your local boards of education. I wish to say that I am a stronger believer in finding defects in school children today than ever before. In the last year, out of 1,200 men who volunteered their services in the Mexican crisis, only 300 were accepted, for the reason that they were suffering from defects which could have been corrected in earlier life, many of them suffering from diseased teeth, defective hearing due to the diseased tonsils, and other defects I could mention.

I believe that the health officers under this law will perfect an organization in the various counties that will be worth more to them along the lines of preventive medicine than any other one thing that has ever happened. These teachers may be indifferent today, but if this law goes into effect they will come and ask advice of you. You will make them your friends, while today those who are not educated pay little attention. The teachers of Buncombe County have been most loyal to me, and if it had not been for their assistance the work of a full-time health officer here would have been a failure. My friends, you will find that where disease spreads most in the rural sections it is due to an illiterate school teacher. They will allow diseases to continue in school after you have instructed them. Take a case of measles, for example. After you have instructed them not to allow any member of the family to attend school, some of the teachers have told them to come until they broke out. I believe one to two days before the eruption appears is the most dangerous time for infection. Again, I wish to say that it has been the pleasure of the Health Officer of Buncombe County to personally instruct more than one hundred school teachers in the way of finding defects. I have told them for the past two years, in order to get their coöperation and assistance, that the time was not far distant when each teacher in the State of North Carolina would be required to find these defects and report them to the State Board of Health, which has come true. I am glad this has come true, and I want to take my hat off to our Governor, as this law was written by him, and I believe that it will prove to be one of the best laws that has ever been enacted.

The Buncombe County health officer has gone before the first teachers' meeting and instructed them how to find defects and also how to control infectious and contagious diseases in the schools. Many of the

teachers have coöperated heartily with the county health officers, and many have not, for the reason they were not instructed to do so by the Superintendent of Public Instruction or their board of education, and this law will prove a godsend to the health officers of North Carolina. I want to thank the gentlemen for putting it through.

Dr. W. M. Jones, Greensboro: This is simply a question now of a law, and the Lord knows we have got laws enough; but I do think this is a good law, and from all the bad ones we can pick out some good ones. Our school teachers in my opinion average up with any other profession in the State. You know the old joke Vance told—he was said to say it —that some senator made about Southern school teachers. They were in the lobby of a hotel and he saw a fellow with a lot of jackasses. He says, "Ain't that some of your Southern school teachers?" Said Vance, "Yes, they are carrying them up North to make senators out of them." Our school teachers are not fools by any means. We have a small minority in the negroes. We usually get a negro whose morals are good, which is rare, and we pay him for what his morals are worth in the community. I do think that this will be a great law and now, another question by Dr. Cooper about the dentist and the doctor. You will never have to employ a dentist or a doctor in North Carolina because I think I know them fairly well, and I know one physician in our county, just as a matter of illustration, that operated on seven cases of enlarged tonsils and adenoids, and he got the magnificent sum of $11. I judge that paid his nurse and the feed he gave them. I know the physicians will come across and the dentists, too. I can speak for my county, and I don't think my county is any exception in the State. It certainly will help the work. I think it will relieve me of a lot rather than to go around and attempt to make an examination of all the children, from the fact when you go yourself to make it in a county with a large number of schools, something like 125, (the school term this year is about ninety-seven or ninety-eight days), year before last it went to 105. If the winters are like the past there are a lot of days when it is bad, and it is on those bad days that these defective children are going to be away from school, and the very ones you wish to see are going to be at home. The teachers not only have the children on good days, but with a large number of schools you are bound to go on some bad days, especially bad ones like this year.

I think it is a most admirable law, and that when the machinery is fixed for carrying it out I am certain you will find the teachers in hearty coöperation and they will do all they can, and if we do our part there will be no grumble coming.

Dr. J. C. Braswell, Rocky Mount: I would like to ask one question: where you have the system of medical inspection in effect, namely, the nurses doing the work, will it be necessary to turn the work over to the teachers?

Dr. Cooper: Yes, for uniformity. You can go just as far beyond this law as you want to, but this much must be done.

Dr. J. C. Braswell: For instance, you have a corps of nurses examining, reporting to the health officer, in turn reporting them to the family physician, will it be necessary for the school teacher to examine these children, too?

Dr. Cooper: Yes, that can be handled by the teacher certifying the treatment.

Dr. J. C. Braswell: I would like to raise an objection on that point. Where we have a satisfactory medical school inspection and you begin to supplant it by putting in teachers not trained in this respect, whereas the nurse is trained, and cannot only examine the children, pick out the defects, but in turn the nurse visits the home of the child and explains the condition to the householder. I personally believe when such a system is in vogue it will be inferior, allowing the school teacher, who is untrained, and will handicap the work.

Dr. Z. M. Caveness, Raleigh: I have begun a piece of school work in Wake County, which is a medical inspection of all the children in our rural schools by a trained nurse. When I was made County Physician in January, 1917, I conceived the idea and saw the great need of a work of this kind, and offered to the County Board of Health the following resolution, which was adopted and now is in operation:

> That we have an annual medical examination of all the school children of the county; that this work be done by a competent nurse, who in my opinion can do this quite as effectively as a physician. The physical defects and the deformities of the eyes, nose, and throat be pointed out and reported to the parents on a blank, furnished by the County Board of Health, and that a copy of this in every instance be furnished the County Superintendent of Health; and that he at once, through a letter, urge upon the parent or the guardian the necessity of having this deformity or abnormality corrected or properly treated by either their family physician or a specialist. And that in those cases where the parent nor the guardian are able to have this work done, that we create and maintain a free dispensary at our county hospital, where they may receive proper treatment.

I consulted our local specialists and ascertained their opinion as to the ability of a nurse to do this work, and asked them if they would not be willing to take my nurse in their respective offices for a few days

each and give her such instruction as they thought that she might need in doing this work. They very readily responded and said that they would not only be glad to do this, but that they would be glad to go with her to some of the schools in the beginning, which they did; and to them we are deeply indebted for the efficiency of the work that is being done by Miss Nora Pratt, our nurse.

All that we are attempting to do is to point out the large defects; those that we all know are greatly handicapping the children's progress in their school work as well as in their general physical development.

Now, in Wake County we have a most cordial coöperation on the part of the teachers. I must say that we have a very efficient County Superintendent of Public Instruction, Prof. D. F. Giles. He has his teachers well organized. He has district teachers' meetings in various parts of the county, and four times during the school term all these teachers are assembled in one body in the city of Raleigh. It has been my pleasure to meet with two of these district meetings and one of the central meetings, where I had the opportunity of speaking to our teachers and explaining to them in detail the purpose of these examinations, and asking them to coöperate with us in this work. And as soon as this resolution of the medical inspection of the school children was passed by the County Board of Health—the same being published—my office was flooded with inquiries from the teachers as to when the nurse would be at their schools and make these examinations. We arranged her itinerary as to time, and the teachers were notified as well as the doctors in these respective communities. In a letter to the doctor, notifying him of the nurse's visit, I asked him to meet the nurse at the nearest school, if he found he had time, and render her any assistance that he saw fit. And, without a single exception, every doctor in the communities in which the nurse has gone—she has been practically in all the county now—we got the heartiest coöperation from our local physicians.

She has reported the physical defects found on a score card I have provided, which provides for an annual inspection of that child for four consecutive years. Then from my office these defects are mailed out on a card to the parent, along with this a letter to the parents urging upon them the importance of having these conditions treated. I referred all of these cases to the family physician, because many of them are amenable to medical suggestions and treatment—and I asked the doctors, where the attention of a specialist is needed, that they refer the patients to one of their own choice. We go further and say, "If there are any not able to have the necessary treatment, if they will report this to the County Board of Health, through their family physician, we will make

provision by which they may receive this necessary treatment." It is our intention to create at our County Hospital a free dispensary where these children will be treated. This dispensary work will be done after the close of the schools. I want to say many of these children already have sought medical attention. They come to have these various defects pointed out, corrected. We have between 8,000 and 10,000 children in the rural districts of Wake County. We have now examined in about two months something over 3,000. Our work will wind up tomorrow until the opening of the schools in the fall.

Now, I heartily agree with Dr. Braswell that I do not believe that where the local health officer, or the County Board of Health, have an efficient system of medical inspection of the children of the county—this by a competent nurse—that this should be supplanted by the examination made by the teachers, because I do not think the teacher will be able to make as accurate an examination as the nurse. Second, you will have about as many different standards as you have teachers. We, for some time, discussed whether or not we should do this work by a nurse or have the doctors in each respective district or community do it, and we finally decided that if we have the various physicians of the county we would have as many standards as we had doctors. In order that we might standardize the work we decided to have one. It is better that something be done by the teachers than that nothing be done at all.

I consider it one of the greatest pieces of legislation that we have had in a number of years in North Carolina, because the boys and girls of today are the men and women of affairs tomorrow—those that will have to take hold of county and State affairs and carry them on.

Dr. W. S. Rankin: I would like to say a word on the relative importance of teacher and nurse examination. In the first place, I heartily agree with the point my friend from Rocky Monut and Dr. Caveness have made. I want to agree with Dr. Braswell and Dr. Caveness that the law is defective, and I am doing this because I do not think Dr. Cooper caught the point. I think the law is defective in not providing where school children have been examined by doctors or nurses that the teacher's examination is unnecessary.

I want to call attention to the importance of the teacher's examination. There are three reasons why the teacher should examine the children. The purpose of the teacher's examination is not to find defects or diagnose diseases. The teacher is not making an examination in the sense that a doctor makes an examination. In the first place, if the nurse or doctor examines the children, the teacher does something else and does not recognize the physical condition of the children and the relation of their physical condition to their mental progress. In the

second place, if the county employed a doctor, the county would be put to a considerable expense. If we asked the Legislature to pass a law requiring the time of a man worth six to ten dollars a day, the Legislature would probably not pass the law. On the other hand, by utilizing the teacher to make the preliminary examination, the expense was not too great to stand in the way of proper legislation. In the third place, if the teacher finds a physically defective child in her school and lives in the community, she is a permanent agent for getting the child treated. I agree with you that the law should have a proviso permitting a county to have a nurse and a doctor make an additional examination but, in any event, the law ought to require the teacher to make the preliminary examination. What is the purpose of the teacher's examination? I want to get that point clear because it is indirectly related to medical ethics. Some one says, "Do you think school teachers can make physical examinations?" The purpose of the teacher's examination is to supply on a properly prepared card certain information to a doctor at a county seat, through which information he may select the seriously impaired children of that county and require them to be brought to his office. It is the doctor that makes the final and decisive physical examination. On that card the teacher would put the name of the parent or guardian of the child and his postoffice. Next, the child's name, his age, weight and height, condition of teeth, and so on. Then, the last question would be the child's mental condition, the child's progress in study. Those cards are turned over to the doctor. The doctor separates the cards into two groups, selecting ten or twelve per cent. that indicate the more seriously impaired children, which he requires the parents to bring before him for further examination. The purpose of the teacher's examination is not the work of a physician, not to make diagnosis, but to furnish a man at the county seat an economical means of having certain children brought to him for a satisfactory examination.

Just one other point that has escaped me, a point that Dr. Caveness made. He said one reason for having one person to do it was to have a uniform method. You must remember that a certain amount of uniformity of method is provided in this law. All the school teachers are brought together, and the county medical inspector of schools goes over this matter thoroughly and shows them uniform methods and gives each teacher a manual as to how to perform her duties.

Dr. L. B. McBrayer: I feel it might be well to run over the discussions and point out the points on which we agree. Dr. Rankin pretty nearly covered the ground.

One thing we all agree on, the physician and the layman, alike, that a teacher is not exactly the proper person to examine a school pupil, or

a grown person; the nurse is not the proper person; the doctor is the proper man to make the examination. We all agree on that. However, in doing things it is found necessary to do the thing you can do. You have the ideal out yonder, but it is necessary to take the first step, and if you do not get the first step you do not get out to the ideal. Then what can you do? Fortunately, we have a broadminded man for Governor, a man who has the interests of the people of North Carolina at heart, and he is going into the matter in an intelligent way. He saw the value of school inspection by the county health officer, and saw that we were only reaching one-fourth or one-fifth of the people, probably less, and he wanted to cover the State. What can we do to cover the State? Well, after a good deal of mature deliberation it was found perhaps the only way was to get the teachers to make this inspection as best they could, after all the instructions that could be given them; then after they had done this those that appeared to be the most seriously defective are sent to a physician for examination, and perhaps best of all, I might say, a way is made for the correction of the defects. Where a doctor can make an examination, of course that is best, perhaps a nurse comes next, but perhaps only one county in the State is using a nurse. That is leaving a big lot out, and I do not think it is any more the nurse's duty to make the inspection than it is the school teacher's. I think they can do it a little better. This is a scheme that will reach every school child in the State, and I am sure we have all agreed on the points mentioned, and I am quite sure we all agree that perhaps with the amount of money to command and the intense desire of the Governor and the State Boards of Health and Education to reach every child in the State, that this was perhaps the wisest thing that could have been put into effect at present. In my opinion this will be the first step toward the ideal. The next step will be a more careful examination of every school child, and perhaps in the not distant future we will reach the point where every human being in the State of North Carolina will have a thoroughly careful physical examination every two or three years, and I am quite sure this will be a long step toward the ideal.

Dr. G. M. Cooper: I am much obliged to all the gentlemen for discussing this law. I want to thank Dr. Rankin for pointing out the points I missed. I heartily agree with practically everything that has been said. I almost always agree with Dr. Rankin and Dr. Braswell. Now, as I told Dr. Braswell, he can go as far beyond as he likes. If the city of Rocky Mount wants to have one-half dozen trained nurses to examine the children every day that is well and good, we are heartily in favor of it. There is nothing in the law to keep them from it. Per-

sonally, I think the work of the school nurses should be helping in the matter of control of contagious diseases, and follow-up work. I know an eastern town of 12,000 or 15,000 with a trained nurse that has been paid about $700 for ten months work. I was in that town and I saw several representative people. I wanted to know how Miss So and So was getting along. They said, "fine; but there is one thing she has done that won't hold; she is attempting to make diagnoses." I personally know about Dr. Caveness' nurse and she certainly has been worth ten times more than she cost. I think every resident in Wake County should be thankful to Dr. Caveness because she is giving the people a better public health spirit, and getting them informed as to some of the necessities. This is the main thing against the nurse, and it also acts to some extent against the school physician in making examinations for this reason: he is of necessity a high-priced man; he must examine a lot of children and the cost is high. A man cannot examine 120 to 150 children in a day and make a proper examination and give those people proper advice, but the teacher, who is with the child every day in the year, can certainly answer "Yes" or "No" to certain questions, and then put it up to a good doctor to do that examining, do it thoroughly and take his time to do it, because they are paying him to do it. Dr. Jones brought out this matter a while ago. I know physicians will treat children if they are brought and are not able to pay. About three weeks ago I was in Fayetteville. I got up soon that morning and I saw in front of Drs. Smoot and Lilly's office a two-horse wagon loaded with children and women, having arrived there before the office was opened. I got to questioning them, and they said they had driven sixteen miles to have eight of the children's tonsils taken out. The physician of Rockfish had gotten them down there. Drs. Smoot and Lilly had agreed to do their work absolutely free of charge. They borrowed a wagon from somebody else and the Rockfish doctor came and gave his aid for nothing. Dr. Jordan, son of Dr. T. M. Jordan, gave the anesthetic for eight of them that day. One of the patients was able to pay for the crowd $5—$1.25 apiece for their day's work. Under this new law that will not be necessary. I do not think the specialist and the doctor should be called on for all of it. I went back home to Raleigh and I got a letter from a widow in another county, stating that her child needed its tonsils taken out but that the specialist there had told her it would cost $35 and he did not encourage her, and she went back home and asked us what to do. Here is the point that I make. The specialist and the doctor are going to do their part, free of charge, whenever they are called on by the right people, but all of us ought to know it is

not human nature for these men to go looking up work to do for nothing when they are often poor men, and depend upon their practice for the support of their families.

I want to say, in regard to the work in Hoke County, the records have shown more than ninety per cent. of the children have already been treated for throat troubles. Dr. Bulla did the examining and Miss Sadie McBrayer, chairman of the School Health Committee, made herself responsible, and with Superintendent McGoogan they have rounded them up; they are giving every child in that county an opportunity. There is that doctor in Rockfish. He was called on not only for a day's work, but a day to go in to see Drs. Smoot and Lilly and arrange for the treatment of these cases.

I thank you every one for the discussions that you have offered, and I believe if you think about it a moment you will agree that the reasons I give for having a uniform, standard law is, we will have records at the end of three years of 800,000 children, something that is not on record in the whole United States, if we can get the proper kind of help in this.

LIFE EXTENSION WORK.

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Vance County has the honor of being the first county to put on a "Life Extension" campaign, thanks to the State Board of Health. In passing through the campaign in company with Dr. Ellington who represented the State Board of Health, we gained some experience, and reached some conculsions, the relating of which may be helpful to other health officers.

In this paper I shall attempt briefly to show (1) the reasons for, and the object of, periodical examinations of adults, (2) reasons why the work should be among the activities of health boards and health officers, (3) a choice of two plans of conducting the campaign, and (4) an outline of the method of examination.

The reasons for advocating periodical examinations of the human machine are: (1) Many of the most serious diseases cause no pain, at least not in their incipiency; (2) Very few people ever consult a physician unless they *are* in pain, or unless they are sick enough to go to bed; (3) Most of the diseases of this character can be cured, or their progress arrested, only when discovered in the incipient stage. Some

of the diseases coming under the classification are tuberculosis, arteriosclerosis, apoplexy, cardiac disease, nephritis, diabetes, cancer, rheumatism, etc.

Tuberculosis still ranks first as the cause of death in North Carolina; though here, as elsewhere, the mortality from Bright's disease, heart disease, and diseases of the circulatory system is increasing.

We cannot hope to accomplish very much in the fight against tuberculosis unless we can discover the disease in its incipiency, for it is only in this first stage that the chances are very favorable for a cure, and at this stage measures for the prevention of the spread of the disease will be more effective than later. As a rule, the cases are not reported until the second or third stage. The damage has already been done so far as the patient is concerned, and many others have been needlessly exposed to infection. Periodical examinations will find many of the incipient cases, and this constitutes one of the most hopeful signs in the fight against tuberculosis.

When hardening arteries are discovered in the incipiency, and the cause removed, (such causes being indiscretions in diet or drink or a focus of infection) we will go far toward preventing or postponing a stroke of apoplexy in that individual. When we can discover valvular lesions of the heart early we can caution the person examined against overexertion, overeating, excitement, etc. Thus the fatal results of such a condition may be postponed.

Cancer, as we all know, can be cured only by radical treatment at the very beginning of the malignant process. The periodical examinations will find many of the malignant growths in their incipiency and give the subject an opportunity to seek proper treatment before the new growth reaches the incurable stage.

Rheumatism, as most physicians now know, is caused by the absorption of infectious material from such foci as decayed teeth and diseased or suppurating gums, diseased tonsils, and infectious conditions of the nose and communicating sinuses. The examinations discover these foci, and the patient is taught the use of the tooth brush, and advised to consult a dentist or nose and throat specialist.

No matter what the condition found, the public health side ends when the person is instructed as to hygiene, and referred to his physician, if treatment is needed. The instruction given in personal hygiene includes: the teaching of a rational diet; emphasis being given to the idea that intemperance in eating will eventually produce the same effect on the structure of the kidneys, liver, and blood vessels, as intemperance in the use of alcohol, and that most people eat an unbalanced diet, usually too rich in meats and the proteins. Advice as to

the proper number of hours for work is given, and the importance of rest is emphasized. We find that most people must be taught to play as well as to work, for work alone will not give sufficient exercise to those muscles not used for that person's particular task. Practically everybody needs to be advised that fresh air, especially during the sleeping hours, is all-important to increase vitality and to aid the body in throwing off germ diseases like tuberculosis.

This instruction is simple. It is knowledge which we would think most people already possess, but unfortunately most people neglect the simple things, even when they know them. The simple everyday things are often the hardest to get into practice. Everybody will practice the new fads and spectacular acts until they become simple and everyday, then they forget them. It seems, therefore, most important to teach people the things they are supposed to know, and to get them to do the simple deeds of everyday life.

In the past, the greater part of our public health work has been done in the schools. The children have been examined and instructed; but it has been difficult to reach our adult population with the gospel of public health. Again, we find the periodical examination to be the best instrument for that purpose. The periodical examination not only makes the adult aware of his own defects, but emphasizes the defects found in his child and makes him anxious to have his child treated as well as himself.

If, as has been shown, these periodical examinations will find disease in its incipient stage; and if adults will be taught how to eat, work, and play, so as to increase the wearing quality of the human machine; unquestionably the mortality of the active, productive years of middle life will be lowered, and people will be helped to reach the Biblical age of "three score years and ten," than which public health work can promise nothing better.

The periodical examinations can be made by any qualified, up-to-date physician, and the profession at large should be making more and more of them. One great trouble with general practice today is the fact that physicians do not take time to make a thorough examination. This is due to several causes: (1) They are too busy; (2) they cannot charge what such an examination is worth; (3) they get into the hurry, haphazard habit; (4) the patient "has a pain" and wants "something to ease" him, without giving the doctor the time or the opportunity to make even a cursory examination. Periodical examination campaigns will teach the people the importance of getting at the cause, and will thereby help the profession to be more thorough.

There are two practical methods of putting on a periodical examination campaign. The first method is to get the county to make an appropriation for the "Life Extension" unit of the State Board of Health. By this method, the State Board of Health will, for an appropriation of about $500, supply a specially trained man who will conduct a campaign of two months, during which time he will examine about 1,000 people.

The second method is one which can be used by the full-time County Health Officer without interfering with his other duties. By setting aside one or two hours for his office each morning and five or six hours on Saturday, he will be able to examine 1,000 or more persons during the year. To my mind this second method is by far the more practical and economical.

The age limit in our Vance County campaign was thirty to sixty-five, but I am of the opinion that the limit should be lowered; for the younger the person is, when examined and taught, the better will be his chances to ward off disease and cure any beginning disease process. This applies especially to tuberculosis, the care of the teeth, and to the teaching of other good habits. Young adults will change their habits and get results, but it is difficult for those who are of advanced age to change the habits of a lifetime; and, besides, the defects found in those of advanced years have too often reached the incurable stage.

By either method of conducting the campaign, a letter, and a leaflet explaining the work, together with a blank post card to be used in making application for the examination, should be mailed to each taxpayer in the county. Dates for the examination of each applicant can then be arranged, and the applicant notified several days in advance. In mailing out the engagement date, a personal history blank should be inclosed for the applicant to fill in and bring when he comes for the examination. This will save much time and the asking of many questions; for, at best, the examination requires twenty to thirty minutes for one accustomed to the work and, of course, longer for the beginner.

The examination should include the following:

Vision test by means of Snellin's test chart and such other examination of the eyes as can be done by rapid observation.

Test of hearing by ordinary conversation.

Inspection of teeth, gums, throat, and nasal cavity.

Examination of mastoids, frontal and superior maxillary sinuses by means of pressure, etc.

Examination of heart and lungs by inspection, percussion, palpation and auscultation; palpation of abdomen; and so on from head to foot.

The blood pressure is taken, and the urine examined by the ordinary methods. (A supply of examination blanks which will serve as a guide may be obtained from the State Board of Health.) The findings should be reported to the applicant's physician on suitable blanks, and advice and literature suitable to each case regarding living habits, personal hygiene, and preventive measures should be given to the patient.

The examinations can be done very comfortably with the following equipment: a Snellin's test chart, a nasal speculum, a vaginal speculum, a flash light, wooden tongue depressors, a stethoscope, a sphygmomanometer, a urine test set and reagents, and an examination table. Sputum for examination for tuberculosis, and feces for examination for intestinal parasites, can be sent to the State Laboratory of Hygiene whenever such examinations are deemed desirable.

In conclusion, I want to express my faith in the value of periodical medical examinations, the belief that such examinations will become an important side of public health work, and the hope that the health officers of North Carolina will be found leading in that work.

DISCUSSION.

Dr. J. R. McCracken, Waynesville: I am sure that everybody has greatly enjoyed Dr. Absher's paper, and while it is not my purpose to discuss it in detail, I will notice and emphasize some of the points that he brought out.

This, as Dr. Absher has stated, is something new in public health work in North Carolina, and we will have to take off our hats to him for initiating a campaign to prolong life. For some years it has been the habit of insurance companies to advise the periodical examination of their insured. If it saves money to have their insured examined, I am sure it would be a good investment to a county to spend some money to have its citizens examined. We have heard a good deal the last few years about medical inspection, and we had a paper this afternoon by Dr. Cooper explaining the recent act of the Legislature providing for medical inspection in the schools of North Carolina. I am sure that this law will do more for prolonging the lives of the citizens of North Carolina than anything that has ever been done in the State.

Dr. Absher spoke about the examination in his county. I agree with Dr. Absher that the age limit should be lower, that at the age of thirty it is difficult to get a man to change his manner of living. Teaching younger people to prevent disease is easier than it is after they have passed thirty.

If I were called upon to name what one thing causes more disease and suffering to humanity than any other one thing I believe I would have to say it is bad teeth and gums. I believe there is more stomach trouble, more nervousness, more rheumatism and insanity, caused by caries of the teeth, and pyorrhea of the gums, than any other thing. It kills people. I remember an old woman I was called upon to see shortly after Christmas. She was sixty years old; she had been in bad health a number of years, had gotten so sick and so nervous that when a person entered the room unexpectedly she would faint, and when I saw her it looked as if she would live only a short while. After making several tests I came to the conclusion that the sole cause of that woman's trouble was her gums; her teeth were dangling like a pendulum of a clock, the pus was dripping from her gums. I tried to impress on the family the importance of having those gums treated. They said "she has had that for twenty years, surely that cannot be the trouble." After treating the old lady for some time, and making no progress she finally decided to have her teeth pulled, she was unable to go to town to the dentist, so I carried the dentist to see her; we removed the teeth, gave her treatment for her gums. That was about two months ago. Last Saturday that lady walked into my office. She said she came to thank me for what I had done; she said she believed she would have been dead if her teeth had not been removed.

Getting hold of diseases when they are in their incipiency is very important because so many things can be much more easily relieved by getting a hold in their early stages.

About three weeks ago I was called to see a man that had grippe. Examining that man, I found he had a heart lesion. I told him about it, told him he could not do any heavy work for some time, possibly never; he must not lift heavy loads, that he must lead a quiet, moderate life. I had not been his physician before that time and some of his people got after him to go to his family physician. It happened his family physician was out of town at the time I was called to see him. His people said, "McCracken might be mistaken about that, go and see the family physician." So he went and told him to give him a thorough examination. The doctor gave him an examination and at the conclusion he said, "Doctor, have I got leakage of the heart?" He said, "You have had it four years, ever since you had the rheumatism." But the doctor had never told him before. If he had been cautioned at the time it was discovered he might be a well man today.

Dr. Absher has so thoroughly covered this subject I think I can add nothing more.

Dr. J. C. Braswell, Jr., Rocky Mount: I shall not attempt to enter into the discussion of such an excellent paper, but due to the

fact that this work is in its infancy and Dr. Absher is one of the pioneers of this line of work, I would like to ask two questions for my own benefit and perhaps for the benefit of the other members of this Society, namely: Who makes the diagnoses and how are they made? Second, how are the patients informed of the condition that may be present and what is the attitude of the physicians in their respective counties?

Dr. Rankin: I was unfortunate in getting in late. I do not know how much Dr. Absher brought out in regard to the subject of the work and how this particular piece of work started. This work was undertaken by the large life insurance companies of this country through their organization known as the Association of Life Insurance Presidents. They meet once a year. This organization created the Life Extension Institute. This Life Extension Institute employed a Secretary, Dr. Fiske, Medical Director of the Metropolitan Life Insurance Company, and Prof. Irvin Fisher. They appointed a reference board, composed of the leading men in surgery, physiology, and various hygienic and allied subjects, to meet and advise with their executive committee in regard to the work. The work determined upon is, to illustrate, this: They go to an organization like Sears, Roebuck & Company, or some big business that employes from a thousand to ten thousand employees, and they point out to the employers of the company the importance of the employees being in a good physical condition, the lessening of accidents, the production of a better quality of material. They say: "We have a force of so many examiners, we will give your employees a thorough examination, we will come in and examine them for a flat rate of so much." In the last two years the Institute has examined something over 200,000 people. One interesting point to practitioners is that the Institute referred fifty-nine per cent of the persons examined to the medical profession.

There is an idea that health work financially interferes with the business of the profession. This is one particular piece of health work that is a money-making thing for the doctors. The examiners do not, of course, treat anybody; they find the condition, inform the patient, and advise that patient to go to the doctor. So far as the financial ability of the State Board of Health will permit us to use the methods of the Institute, we are using them. We put an examiner in the county and we keep him in the county as long as the county commissioners will pay for the work.

Dr. D. C. Absher, Henderson: There is one point I failed to make in my paper and I noticed no one else brought it out, and that is, that if we have a fine automobile or even an old buggy we carry it to the shop now and then, usually about once a year, and have the mechanic to run over it and see if there are any loose bolts or taps about it. If

there is anything wrong we have him to tighten it up because we realize by doing that we can make the machine last longer. If we do that for an automobile we certainly ought to exercise as much intelligence in preserving the body. One thing we do in making these periodical examinations is to try to impress upon the person examined the importance of his being examined at least once a year.

Dr. Braswell asked three questions. The first question was whether or not the examiner makes the diagnosis. The literature which has been prepared by the State Board of Health on this subject states that no diagnosis will be made by the examiner. He merely points out the defects. If he finds some obstruction of the nasal passages he is supposed to put a check on a blank report, but he is not supposed to state what that defect is. He makes his reports in triplicate, one to be given to the patient, the second report he gives to the family physician, the other report he keeps for his own records. He is supposed, I say, not to make any diagnosis, but the patient very often wants to know what the diagnosis it. He thinks the man coming from Raleigh knows more than the doctor in the county, and very often it is very hard not to tell the man what you think the trouble is. I have found in our county that this has given Dr. Ellington some little trouble.

As to the attitude of the physicians, I believe practically all of them will approve of the plan. In our county the matter was brought to the attention of the County Medical Society before we started the campaign, and the Society unanimously approved the work. I am sorry to say, however, that the fact that some few diagnoses were made unintentionally, and the fact that some did not agree with the diagnoses previously made by the family physician, caused a change of attitude on the part of some of those doctors afterwards. That is an important point for a health officer to keep in mind. Keep as far from a diagnosis as possible. Find the defect but do not be explicit in defining the disease. You can explain to the physician orally afterwards but do not tell the patient what his disease is. There are some exceptions, though. For instance, if you examine a patient who, you are sure, has tuberculosis, I am of the opinion that, whether you state on the blanks or not that no diagnosis will be made, you should tell the patient. I believe that the average physician can detect tuberculosis in the incipient stage if ordinary care is exercised. You may examine a man's eye and see that he has defective vision, still you may not have time to examine the retina with the ophthalmoscope. You will, therefore, simply report to the man that he has defective vision, and it is then up to the specialist to diagnose the real cause of the defective vision.

A PLEA FOR THE PHYSICAL AND MENTAL EXAMINATION OF BEGINNERS IN SCHOOL.

CHAS. O'H. LAUGHINGHOUSE, M.D., GREENVILLE, N. C.

Medical inspection of schools is not new. The International Medical Congress emphasized the need of it in America as far back as 1876. Like many other movements that make for economy, morals and the prolongation of human life, the idea lay seemingly dormant until 1894, when the city of Boston established a regular system for this purpose. At the International Congress on School Hygiene, during its Buffalo meeting, in 1913, widespread interest in this subject pro and con was evidenced by the foremost educators of America. Today the work has become established to an extent sufficient to give even the most conservative ample grounds for the conviction that it is an economic force, so powerful for good that it must be accepted and adopted.

It is my purpose on this occasion to call attention to a phase of the problem which, from the viewpoint of farsighted economics, means much to the State. I refer to the thoroughgoing scientific examination of the physical and mental fitness of each child on entering school life.

The parent, teacher, and medical inspector, will have to do team work to succeed in the undertaking; therefore to make it a success, we must first develop a public sentiment that will satisfactorily assist in perfecting that which medical inspection undertakes to accomplish. The examination of the child at the time of its entrance in school can be made the great rallying place, the common meeting ground for all those interested in the child. It can be made the tripod magnate, the coöperative leader between the home, the teacher and inspector—a thing which is fundamental; because it is only through the coöperation of these three forces that the problem of adapting school work to the capacity of the physically and mentally abnormal child can be intelligently solved. The one great cause of inefficiency and waste in the school work of today is the failure to recognize the child's individual capacity. I fear we forget that a few years ago the parents were pupils, and that the beginners of today will be the parents in twenty years of the children that feed the educational mill.

To determine the mental development of the child on entering school life will necessitate the close observation of the child's behavior, not only in school but on the playground. The teacher should be taught how to observe and learn a child's character and disposition. Tests have been worked out, by which one can determine the contents of the child's

mind, its interests, its ability to use the knowledge it possesses, etc. The Binet-Simon tests for the sixth year can be put into practice along with the various tests of psychologic age, which puts the teacher in position to spot the psychopaths.

If you gentlemen would undertake to blaze the way in North Carolina there is no doubt but that other States would soon begin to follow; because a thorough physical and mental examination, made compulsory in the beginning of school life, will help greatly toward the diagnosis and cure of many neglected chronic cases of childhood. It will lighten the burden of teachers rather than add to it; it will simplify the problem of pedagogics, it will develop a more correct attitude in parents toward medical inspection; it will save the anguish of learning later in life that children are irrevocably defective. The extra money it will cost will be saved immediately and over and over again by eliminating the defective that repeats the same grade year after year. Ultimately and not so far in the dim distance of the future, the State will save enough in the curtailment of appropriations incident to the maintenance of its asylums, prisons, and criminal courts to pay an interest sufficiently usurious to satisfy the wildest dreams of avarice.

The application of the Binet-Simon scale of intelligence tests is not insurmountably difficult. It consists of the application of a series of tests, which can be met successfully by the average child of stated years; for example, we will say seven. The child of seven years, however, is unable to meet the group of tests which is adapted to the more mature powers of the eight-year-old child. A child, no matter what his actual (chronological) age may be, who in this examination is only able to reach the level of the average seven-year-old child, is said to have the mental age of seven years. Frequently a child who is unable to do successfully any complete group of five questions beyond a certain group, is able to do isolated questions in these higher groups. Credit is given for these questions according to the arbitrary rule, that for every five isolated questions answered correctly an additional year is added to the age, corresponding to that group of questions; all of which have been successfully answered. Thus the child, who answers successfully all the questions corresponding to the age of seven years, and although not answering completely all the questions corresponding to the age of eight, but answers ten of the eight-year questions, this child is awarded two additional years.

Just so soon as the Binet-Simon scale of intelligence tests become common knowledge, just so soon as the school teacher gets it grafted into the educational machinery of the State, we can then begin to make practical application of it in handling criminology.

As a result of our neglect in the past, we have with us always the immediate and pressing need for the identification and care of the defective, not only for his own sake, but for the protection of society. They are increasing and will continue to increase until they are found out in early childhood, and until a general understanding is brought about, regulating the laws of mental health to an extent sufficient to segregate the defective and to popularize and educate coming generations on the science of Eugenics.

That we have been neglectful becomes clear when we recall that Congress only a few years ago spent months in debates concerning the "literacy tests" for immigrants and did nothing to exclude the defective classes. A negro from the cotton fields of Georgia, with no education at all, passed the Binet-Simon tests in the psychopathic laboratory of the municipal court of Chicago, and was found to be normal. Had he been an immigrant he would have been denied admission into the United States through and by the "literacy test," but had he been a defective of the moron type, able to read, he would have been admitted under the law of literacy. This gives an idea of the lack of appreciation on the part of our leading lawmakers as to this subject. The physician has heretofore given too little time to the subject; having left it to the alienist in the past, and the alienist, it seems, has until recently permitted the psychologist to excel him in the ability to measure human intelligence.

Four years ago a test was made between the ability of medical men and the Binet-Simon tests in the matter of detecting defective immigrants at Ellis Island. The doctors caught 10 per cent, the Binet-Simon tests caught 90 per cent. If the teaching and medical profession have lacked interest in this subject what must be said of the legal profession and the ministry? They, too, as a rule, have little or no knowledge of the subject. To illustrate: Not long ago there arrived into a certain Western city a fugitive from another state, a boy 20 years old, who had committed a triple murder. He was given, in the city to which he had fled, a physical and mental examination by a competent expert. He was found to have a basal age of eight years and a mental age of ten. He had dementia praecox, grafted on to feeble-mindedness, an affected lung, and an organic heart lesion. It was apparent to the casual observer that the boy was backward and stupid. While he lay in jail it was rumored that a mob, made up in the State from whence he fled, was organizing itself to lynch him. A judge in that State, on a plea of guilty, sentenced him to death. The sentence of the boy could be justified perhaps on the ground that it is better for society to eliminate him—provided our standards for deciding such things were

no higher nor more humane than the primitive standards of "ye olden times," but in the light of modern knowledge such a sentence is as barbaric, as revolting, and as heinous as the crime for which the poor defective devil was put to death. Had his mental deficiency been identified during child life, those who came in contact with him could have realized his lack of intelligence and control, and could have dealt with him in such a way as to prevent his commission of crime.

Criminal statistics prove that the age when first commitments for crime occur is early in life, between the years of 16 and 22—a fact that goes far to show something inherently defective. The research of the alienist and psychologist confirm scientifically what statistics seem to prove. A large per cent of the flotsam and jetsam of humanity belong to this class—the prostitute, tramp, vagrant, alcoholic, petty thief, murderer, etc. They cannot compete with normal men, so become charges on charity, unemployed because unemployable, unless they adopt sporadic purposeless undertakings, exemplified usually in criminal careers.

The money society lays out upon them for police and court expenditures, reformatories, prisons, poorhouses, workhouses, asylums, and the like, should be used in finding them out during childhood and managing and educating them accordingly.

DISCUSSION.

Dr. Albert Anderson, Raleigh: I do not know when I have heard before any medical meeting a more timely address. I believe nothing better could be done than to have this address printed and distributed among the people of our State. It is in line with what I have been thinking should be done from my experience in work of this kind for the last four years. I was impressed so strongly with the importance of this work that I asked permission of our board of directors to allow us sufficient money to pay expenses of one of our staff to canvass our district on the mental hygiene work. In this way we reached a majority of our counties and put this preventive work at least before ten thousand people in a year's time.

I was talking to our Governor about this preventive work and said to him: "I hope to see the day soon come when we can take up this preventive work more earnestly and effectively, and, in my opinion, in a short time we could decrease the numbers that are coming to us." He replied that it should be done and it seemed to him that we had had the cart before the horse long enough. He also expressed a willingness to go before the committee for an appropriation and ask for suffi-

cient money for each hospital in the State to employ a field worker. This work would lead to the discovery of abnormal children who could be trained in the home and school in a way to prevent the development of future trouble by fixing the right habits upon their mentality and getting wrong habits out of their lives.

Parties are sent to our prisons by the courts instead of hospitals where they should be treated as patients. This is all wrong. If we cannot have relief by enlarging our hospitals it is impossible to relieve the situation. The congestion at all of the hospitals is alarming and demands immediate relief. If the right thing is done, all of the hospital men should carry this message to the profession, to the teachers and to the homes. I believe that is our greatest work, and while this cannot be done at present, I would urge upon the doctors of North Carolina to move with us that the State provide room enough to take these people into our hospitals during the incipient state of their trouble instead of letting them stay at home to become chronic and hopeless before we get them.

I thank Dr. Laughinghouse for this able address in behalf of the unfortunates and in our behalf who are battling every day to improve the situation.

Dr. Arch Cheatham, Durham: I want to thank Dr. Laughinghouse in behalf of the Society for the able paper he has presented to us. It is a subject we should all be interested in, and I am sure I represent the sentiment of this Society in thanking him for this able address.

Dr. G. M. Cooper: I should like just about three minutes of the Association's time out of order if I can get it. One of the great questions now seems to be to call for volunteers. Dr. Z. M. Caveness, representing Wake County, has suggested this is too great a meeting to go away without results. Wake County is the first county to come forward to comply with the new school inspection law.

Dr. Z. M. Caveness: I said this evening to Dr. Cooper that I would be very glad to volunteer Wake County to be the first county to comply with this new school inspection law. We can easily do this under the line of work we are doing.

I did not make myself very plain this evening. We have already practically met the requirements of this law in making these tests—medical inspection tests in our schools—because the teachers in every instance assisted in this work. School is suspended and she helps the nurse to make these tests. It seemed that some of the gentlemen seem to think this nurse was making diagnoses. She is not. We are only

using her in order that we may get these children to the family physician, and it is he who in every instance makes the diagnosis. If he finds that there is some condition that needs the attention of a specialist he refers them to one of his own choice. Otherwise, he prescribes or suggests whatever in his opinion the child needs to correct the defects that have been pointed out by the inspection.

Dr. John Thames: I would like to answer in this way. Every school child in New Hanover County was examined last year. I will say to those county health officers that the teachers in the schools in that county helped us make examinations very much in the same way as the new law provides for. I did the county work in the last two years.

Counties complying with New School Inspection Law—Vance, Guilford, Mecklenburg, Buncombe, Forsyth, Sampson, Swain, Martin, Catawba, Pitt, Haywood, Nash, Montgomery, New Hanover.

REPORT OF COMMITTEE ON RESOLUTIONS.

[Report not received]

Moved by Dr. Rankin that resolution be adopted as a whole. Seconded; carried.

REPORT OF COMMITTEE ON RECOMMENDATIONS OF PRESIDENT.

First. That all nominations of officers of the Society be made from the floor.

Second. That each health officer prepare a brief report of his work, consisting of not more than five hundred words, and that a copy of this report be sent to the Secretary not later than ten days before the annual meeting.

Third. That all members who are to read papers send to the Secretary their title and brief of its contents at least thirty days before the meeting, so that the Secretary when appointing members for discussion may send them the title and brief of said paper for their guidance.

Fourth. Recognizing the fact that the writer of a paper cannot always be present, and being desirous of always having a complete program, we recommend that whenever the author of a paper finds that he cannot possibly attend, he either delegate some one to read same or send it to the Secretary to be read.

Wm. M. Jones,
John Thames,
C. S. McLaughlin,
Committee.

The following special resolution was introduced by Dr. G. M. Cooper:

We, the members of the North Carolina Health Officers' Association, desire to tender our sincere appreciation to the Buncombe County Medical Society for the lavish manner in which they have entertained our Association today.

Moved by Dr. Rankin that it be adopted by a rising vote. Unanimously carried.

Dr. Cheatham: The election of President is now in order.

Dr. D. E. Sevier: I wish to place in nomination a man whom I have known since the organization of the Health Officers' Association of North Carolina. I know he has always been progressive. I feel sure that he stands second to none, not only in the State of North Carolina but in the United States, and I wish to present for your due consideration the name of Dr. D. C. Absher, of Vance County; postoffice, Henderson.

Moved by Dr. Braswell that nominations be closed. Nomination seconded by Dr. Braswell; unanimously carried.

Dr. D. C. Absher, Henderson: I want to assure you that you have made a very great mistake in electing me as your President. However, if it is your will that I shall serve you I shall do my best to occupy the chair.

The next in order is the election of a Vice-President. Nominations are in order.

Dr. Arch Cheatham, Durham: I rise to put in nomination for Vice-President a man who has always responded when called on by this Society, and he has done his work well. I am going to place in nomination the name of Dr. M. T. Edgerton, of Pitt County, for Vice-President.

Nomination seconded; unanimously carried.

Dr. Cooper nominated by Dr. Caveness for Secretary-Treasurer. Nomination seconded by Dr. D. E. Sevier; unanimously carried.

Dr. D. C. Absher: I feel myself that we should make Dr. Cooper Secretary for life.

REPORT OF AUDITING COMMITTEE.

We, the Auditing Committee, have examined the records of the Secretary and Treasurer of the North Carolina Health Officers' Association, and find the receipts and disbursements to be in balance and the same to be accurate and correct.

C. W. Reynolds,
A. C. Bulla,
E. F. Long,
Committee.

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